OSI
Odessa Separator, Inc

WESTERN
OILFIELD
SPECIALTIES CORP

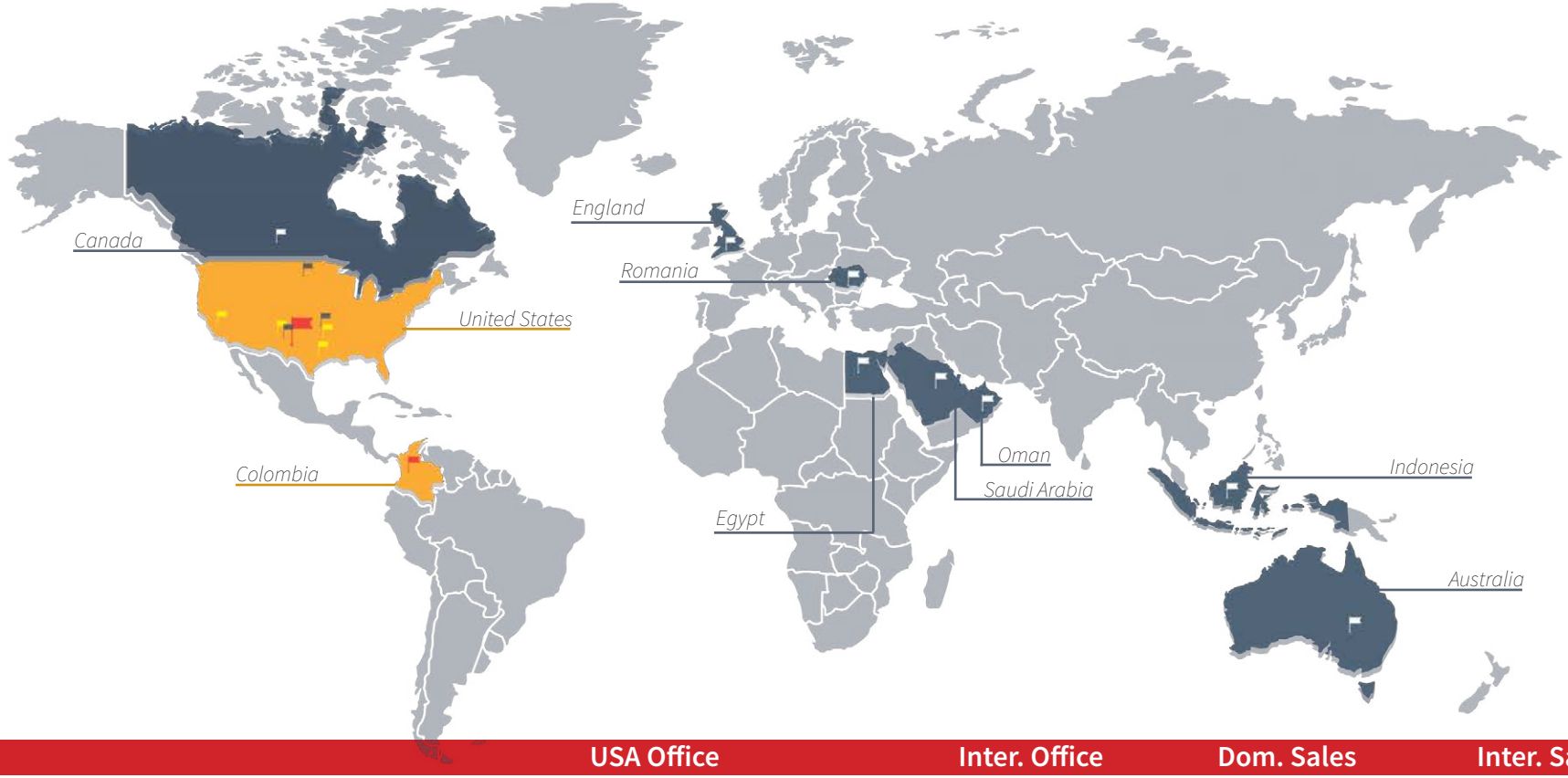
Fluid Conditioning Systems

Maximizing production performance with integrated artificial lift solutions.

ESP PREMIUM PACKAGES | SUCKER ROD PUMP | GAS LIFT & PLUNGER LIFT | PCP

Odessa Separator Inc. is a world leader in downhole fluid conditioning systems

Our Domestic & International Offices



USA Office	Inter. Office	Dom. Sales	Inter. Sales
Odessa (Principal Office)	Colombia	California	Canada
Hobbs		New Mexico	Indonesia
North Dakota		San Antonio	Australia
Oklahoma			Egypt
			Oman
			England
			Saudi Arabia
			Romania

Contents

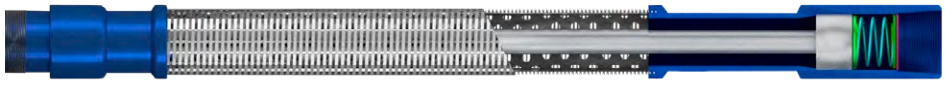
#OSISolutions

OSI Products

Filtration / Sand Control

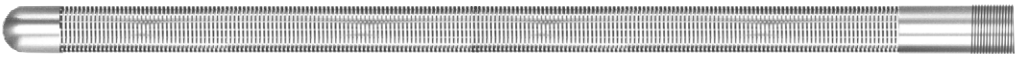
ESP Sand Lift

Tubing Screen



Top Bypass Valve

Super Perf



Pump Guard Screen

Vortex Sand Shield

Gas Separation

Slotted On Top Gas Separator

Gas Separator

Gas Shield

Slotted Gas Shield

Office: (432)-580-7111 | www.odessaseparator.com

"Your source for fluid conditioning systems"

Chemical Tools


Top


Center


Bottom


Slow Release

Chem Screen


Quick Release


Retrievable Chem Tool - SRP / Gas Lift

Components


Seating Nipple

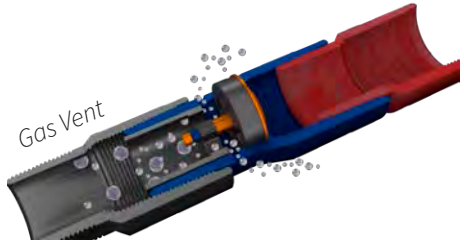

No Flow Collar


Collar


Bull Plug


Tubing Connection


Flow Nipple


Gas Vent


Triple Seal Cup Packer

Shut Off Valve


Chemical flow downward - Open Valve


No spillage - Closed Valve

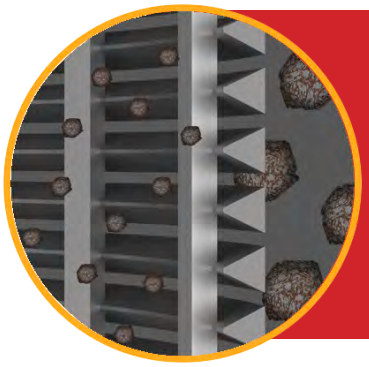
Oilfield Challenges SAND

Sand in a well is very costly, causing damage to downhole equipment and reducing pumping system efficiency.

SOURCES OF SAND

- Formation sand – relatively smaller, and irregular size grains.
- Frac Sand – larger and very uniform in size also, more abrasive.

Slot	Size (Microns)	US. Mesh Sieves	Retained Weight (gr)	Retained Weight (%)	Cumulative %
50	1,410	14	0.2	0.2	0.2
30	841	20	0.4	0.4	0.6
20	595	30	2	2	2.61
15	400	40	53.3	53.41	56.01
12	297	50	21.6	21.64	77.66
10	250	60	12.8	12.83	90.48
8	210	70	6.4	6.41	96.89
7	177	80	2.4	2.4	99.3
Pan	Pan	Pan	0.7	0.7	100
		Total Weigth =	99.8	100	100



Slot size is the area of opening between the V-wires.

Slot size dictates the size and type of filtration for a screen.

OSI laboratories perform solid and sieve analysis on produced fluid samples to ensure that slot size, tool length and filtration stages will mitigate screen plugging and maximize run times.

Odessa Separator Incorporated is committed to providing operators solutions for the numerous sand problems found in producing wells.

The OSI Solution

Highly trained and experienced OSI personnel will work closely with operators produce well-specific downhole system designs.

OSI's extensive and unique line of sand mitigating tools can provide solutions for the most difficult downhole conditions.

OSI TOOLS PROTECT:

- Rods
- Downhole Pumps
- PCP Rotors
- Tubing
- ESP Motors
- PCP Stators

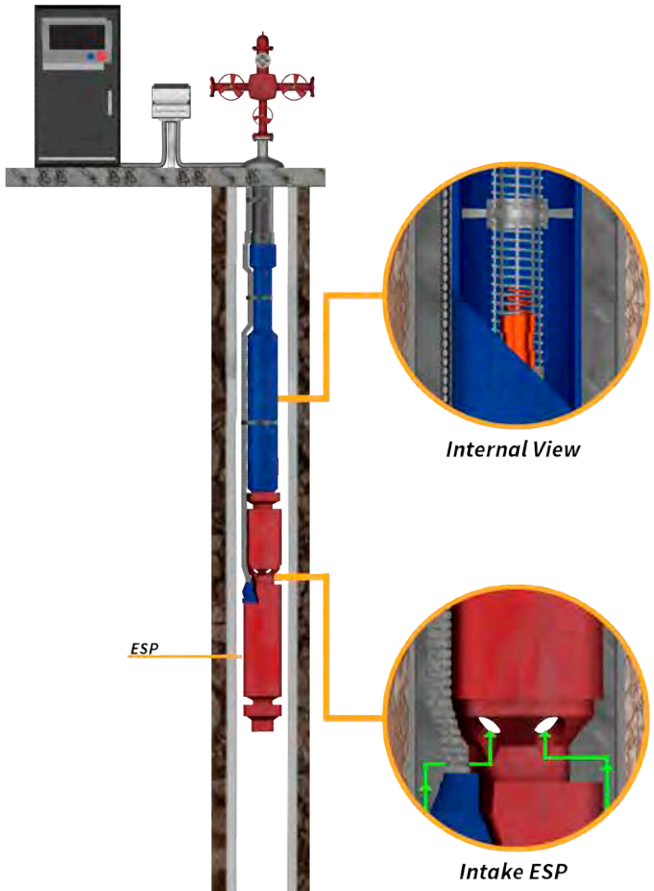
- OSI TOOL -

LONG RUN TIMES

Sand problems in your wells? No big deal, Odessa Separator Inc can advise on the tools you need to extend your pump's run life.

ESP SAND LIFT

Patent No.: US 9,441,435 10,132,151 10,132,152 10,584,571



Odessa Separator's ESP SAND LIFT provides extended ESP run times through improved downhole sand management.

It is installed above the ESP discharge, where, upon start-up, the unique OSI dart, sand-breaker uses differential pressure to push fluid and entrained solids through tubular ports in one flow path, to the surface

Provides significantly longer ESP run times

BENEFITS

- Prevent workovers due to sand failures.
- Extends run times by regulating the rate of falling sand.
- Backflush operations are carried out easily.
- Housing is highly sand-resistant.

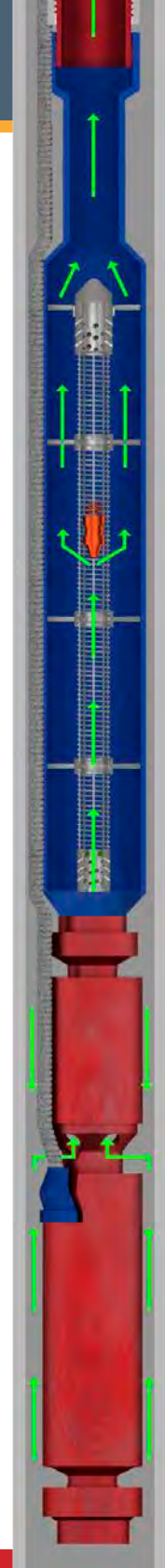
Use your device by scanning the QR code

VIDEO

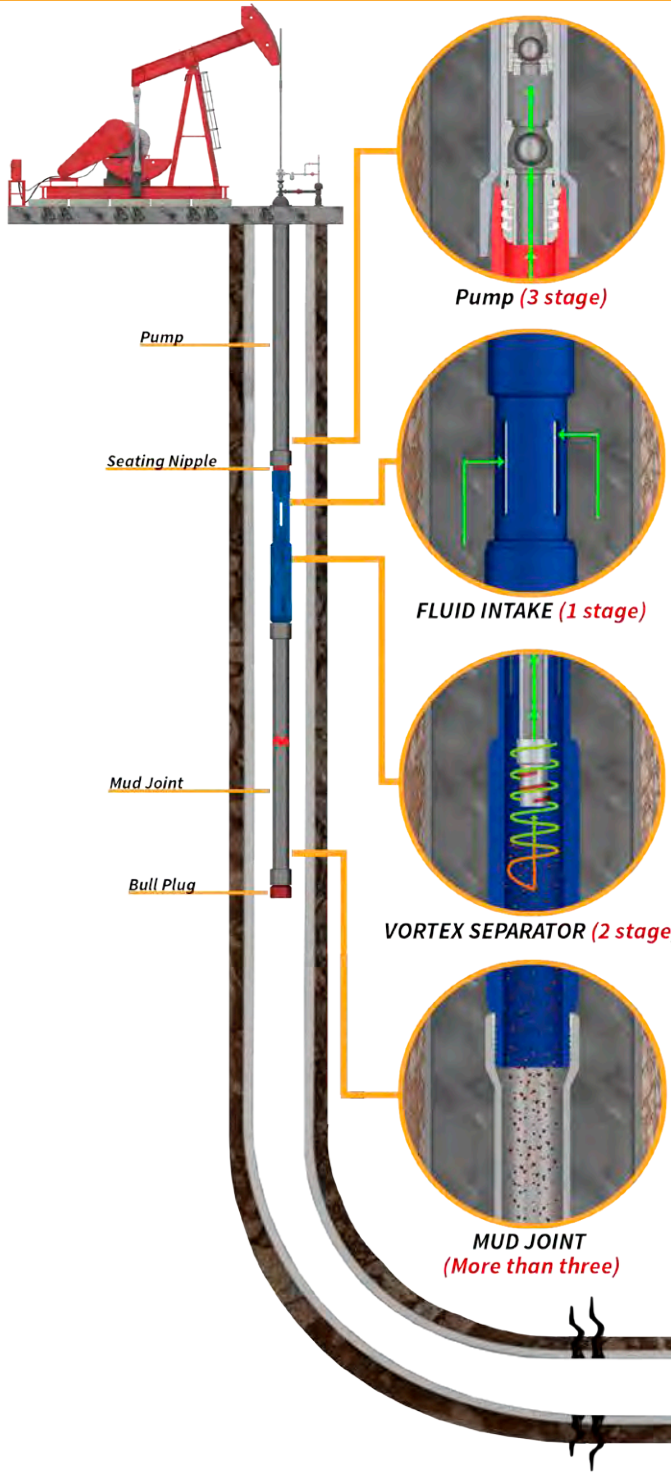
AUGMENTED REALITY

Description	Lifting Neck OD (in)	Body OD (in)	Connection Top	Connection Bottom	Capacity of the Cavity (in^3)	Total Open Area (in^2)
Series 350	2-7/8	3.5	2-7/8" EUE Box	2-7/8" EUE Pin	1453.6	293.6
Series 400	2-7/8	4	2-7/8" EUE Box	2-7/8" EUE Pin	2060.5	293.6
Series 450	2-7/8	4.5	2-7/8" EUE Box	2-7/8" EUE Pin	2773.1	293.6
Series 550	3-1/2	5.5	3-1/2" EUE Box	3-1/2" EUE Pin	4454.4	368.8

HOW IT WORKS



VORTEX DESANDER



Pump (3 stage)

FLUID INTAKE (1 stage)

VORTEX SEPARATOR (2 stage)

MUD JOINT
(More than three)

The Vortex Desander is a high efficiency desander designed to separate sand particles prior to entering the pump.

The intake consists of a specifically engineered slotted design. These slots are cut using a plasma cutter which creates smoother cut surfaces than other cutting methods. Smooth surfaces are less likely to be affected by corrosion.

The helix creates the vortex effect using centrifugal force, which separates the smaller solids and deposits them into the tail pipe[s] (mud joint[s]). This improved version of the Vortex Sand Shield was designed to withstand the high speed of the sand in the tool and prevent the failure of the solids separation system.

BENEFITS

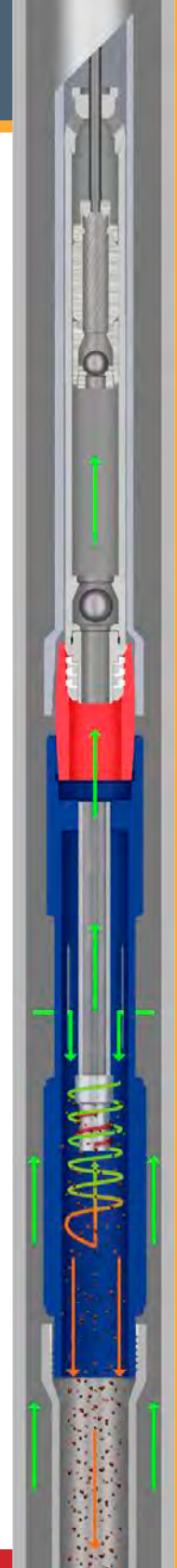
- Reduces the downtime due to solids issues.
- Fewer interventions and less investment in CAPEX.
- Avoid the premature failures of the pump components caused by the solids.
- Avoid problems such as sand cutting.

Use your device by scanning the QR code

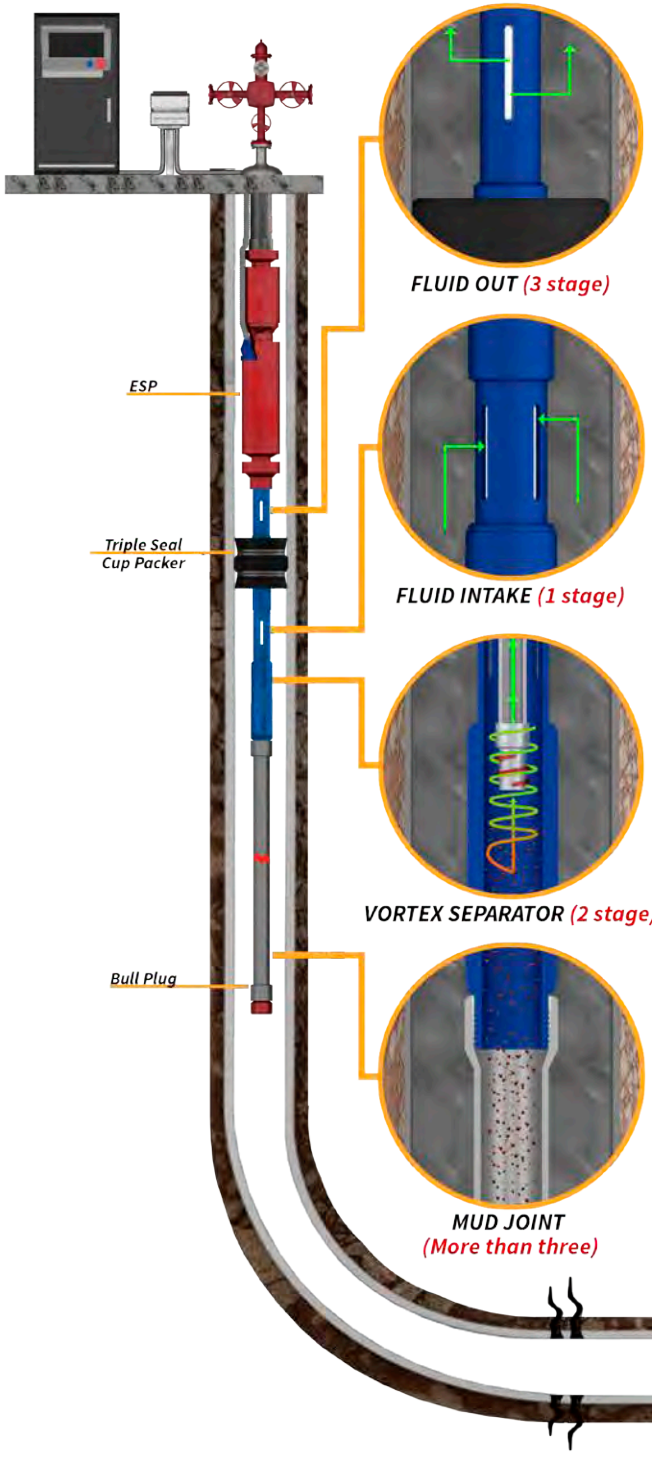
VIDEO

AUGMENTED REALITY

HOW IT WORKS



ESP VORTEX DESANDER



The ESP Vortex Desander is designed specifically for wells where high lifting costs are a result of sand problems. The intake slots are cut with a plasma cutter making them smoother and much more corrosion-resistant.

The OSI Vortex Desander technology, employs centrifugal force, created by a helix to achieve maximum separation efficiency. This centrifugal force separates the smaller solids and deposits them in the tail pipe made up of multiple mud joints.

The ESP Vortex Desander was engineered to withstand the high speed of the particles avoiding sand "cutting" and system failures.

BENEFITS

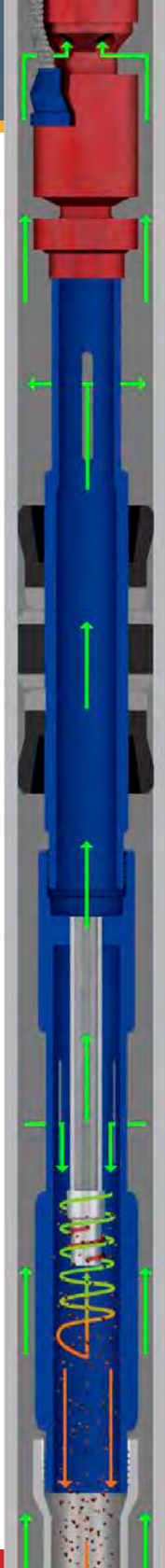
- *Lower lifting costs, reduces downtime, and greater operating efficiency.*
- *Reduces pump failures resulting from sand damage.*
- *Plasma cut intake slots resist corrosion.*
- *Centrifugal force greatly increases sand separation efficiency.*

Use your device by scanning the QR code

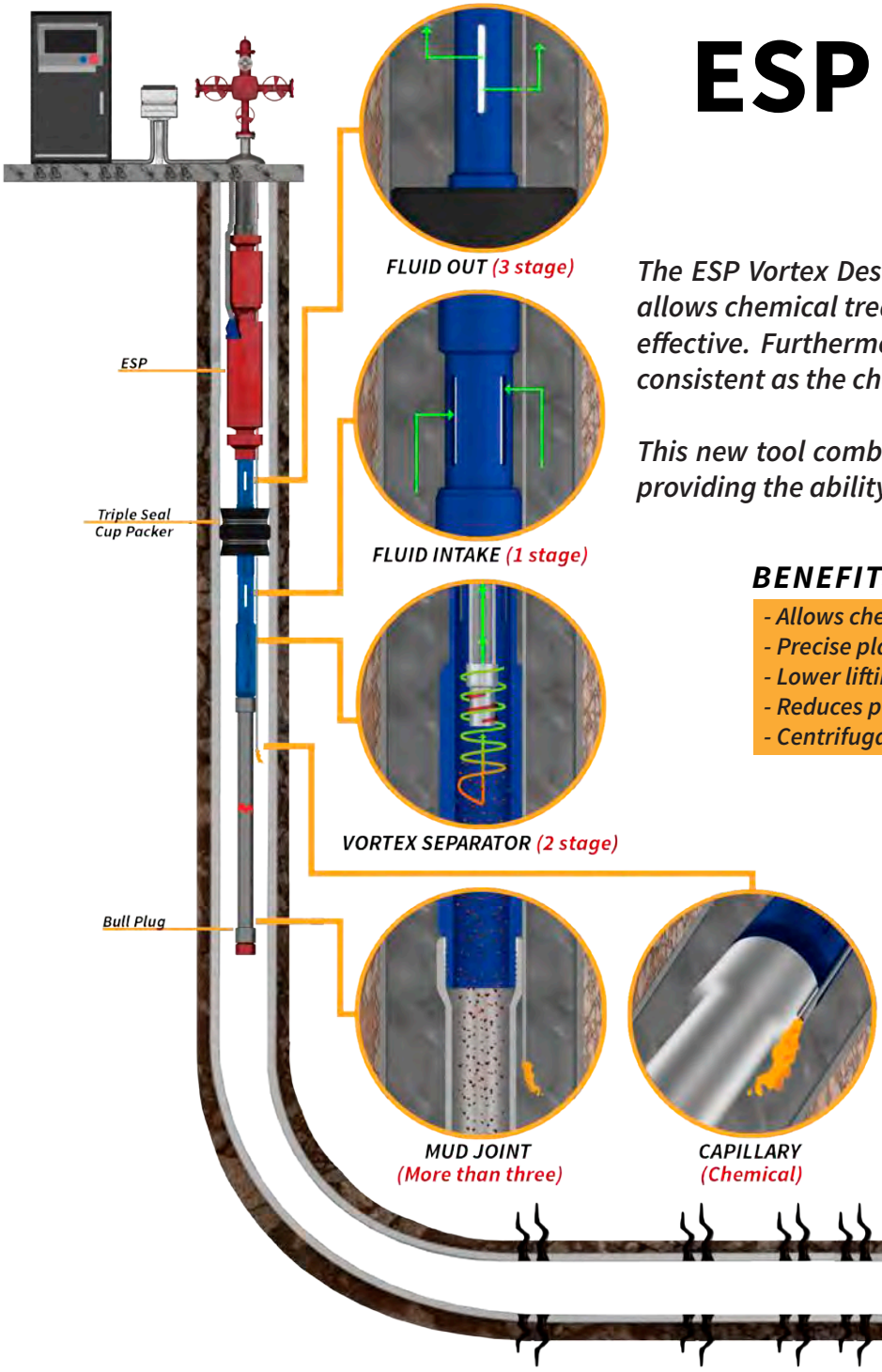
VIDEO

AUGMENTED REALITY

HOW IT WORKS



ESP VORTEX DESANDER
WITH CAPILLARY STRING



The ESP Vortex Desander W/ Capillary String employs a cup packer with CT line that allows chemical treating below the packer in a specific, targeted area where it is most effective. Furthermore, this precise placement of chemicals makes dispersal more consistent as the chemicals disperse from the bottom up.

This new tool combination provides all the benefits of the ESP Vortex Desander while providing the ability to chemically treat precisely at the bottom of the hole.

BENEFITS

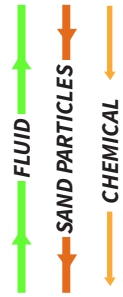
- *Allows chemical treatments below the packer, in a targeted area.*
- *Precise placement of chemicals where it is most effective.*
- *Lower lifting costs, reduces downtime and greater operating efficiency.*
- *Reduces pump failures resulting from sand damage.*
- *Centrifugal force greatly increases sand separation efficiency.*

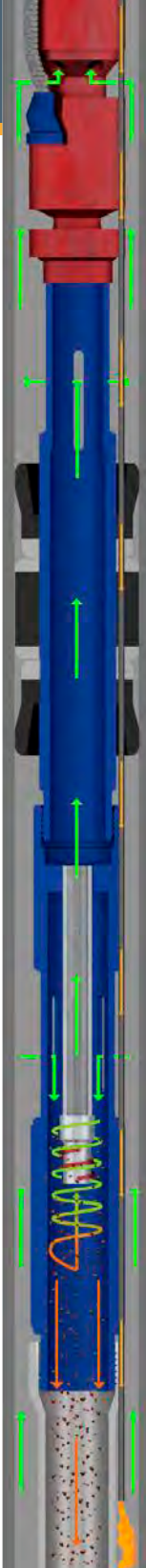
Use your device by scanning the QR code

VIDEO

AUGMENTED REALITY

HOW IT WORKS



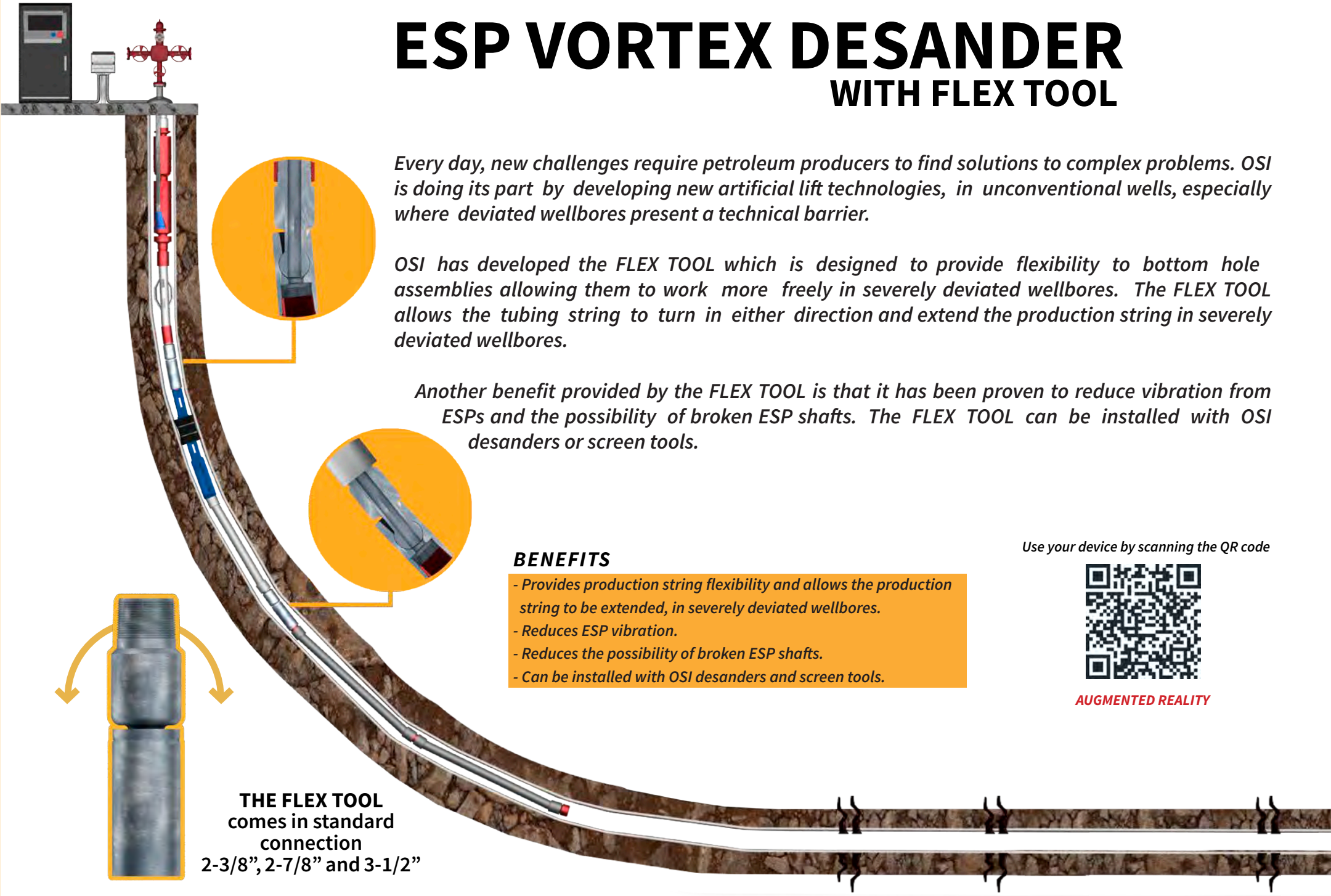


ESP VORTEX DESANDER
WITH FLEX TOOL

Every day, new challenges require petroleum producers to find solutions to complex problems. OSI is doing its part by developing new artificial lift technologies, in unconventional wells, especially where deviated wellbores present a technical barrier.

OSI has developed the FLEX TOOL which is designed to provide flexibility to bottom hole assemblies allowing them to work more freely in severely deviated wellbores. The FLEX TOOL allows the tubing string to turn in either direction and extend the production string in severely deviated wellbores.

Another benefit provided by the FLEX TOOL is that it has been proven to reduce vibration from ESPs and the possibility of broken ESP shafts. The FLEX TOOL can be installed with OSI desanders or screen tools.



BENEFITS

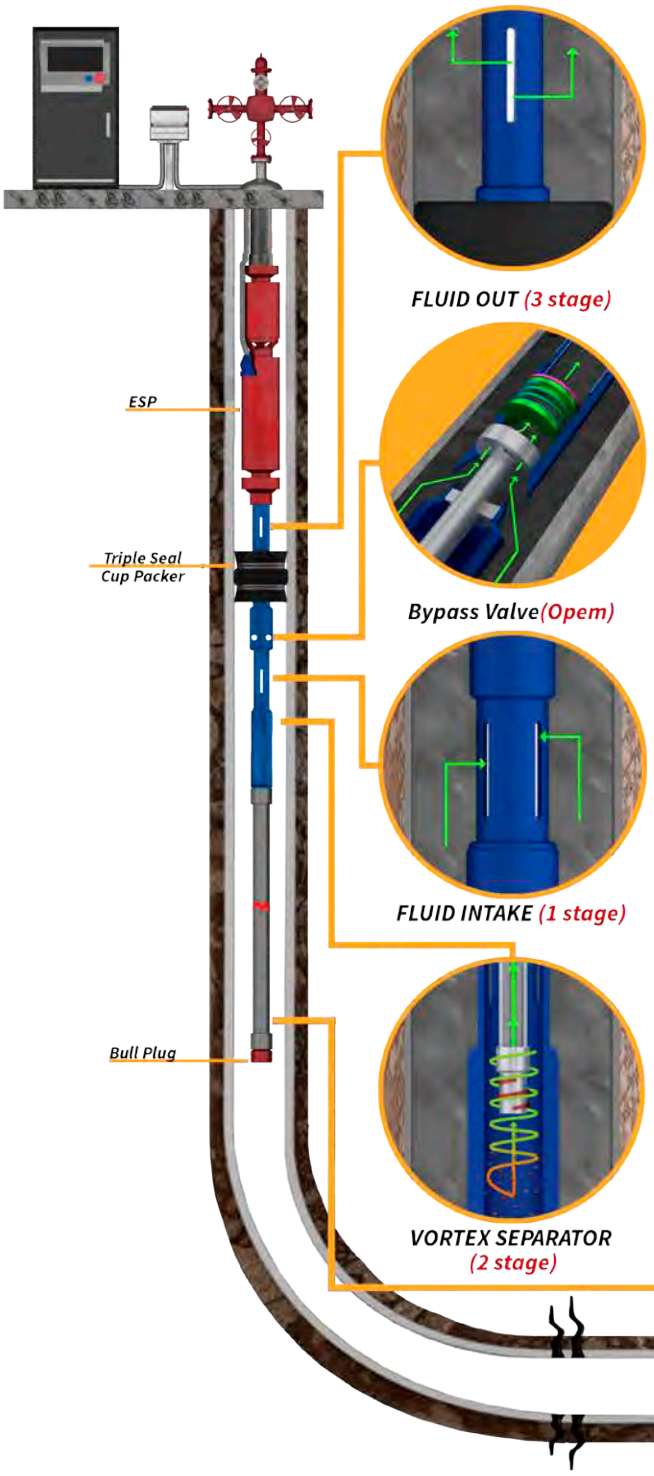
- *Provides production string flexibility and allows the production string to be extended, in severely deviated wellbores.*
- *Reduces ESP vibration.*
- *Reduces the possibility of broken ESP shafts.*
- *Can be installed with OSI desanders and screen tools.*

Use your device by scanning the QR code

AUGMENTED REALITY

THE FLEX TOOL
comes in standard connection
2-3/8", 2-7/8" and 3-1/2"

ESP VORTEX DESANDER
WITH BYPASS VALVE



The OSI ESP Vortex Desander with Bypass Valve was engineered to provide extended run times after the mud joint tail pipe fills with sand.

The Bypass system activates when a differential pressure of greater than 33 psi occurs between the sections below and above the packer.

The Bypass maintains fluid flow to the ESP after the storage joints have reached maximum capacity.

BENEFITS

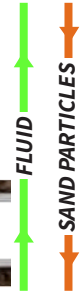
- *Reduces the downtime due to sand issues.*
- *Fewer interventions and less investment in CAPEX.*
- *Stable pump parameters: Vibration, frequency, voltage and motor current.*
- *Avoid the premature failures of the pump components caused by sand production.*
- *Keeps fluid flow to the ESP.*

HOW IT WORKS

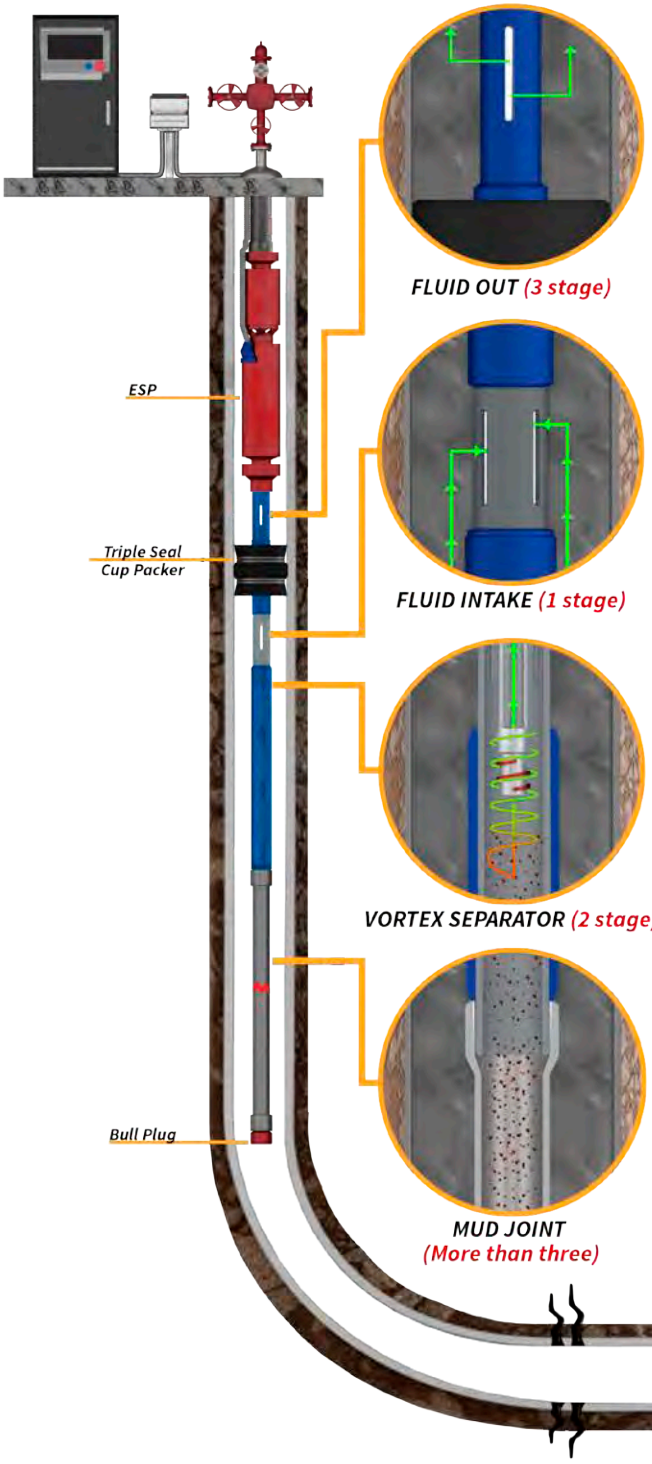
Dual Flow System

Use your device by scanning the QR code

AUGMENTED REALITY



ESP VORTEX DESANDER
(HIGH RESISTANCE)



The OSI ESP Vortex Desander (High Resistance) was engineered for conditions involving high rates of abrasive or corrosive flow.

A Boronized hardened, wear resistant body provides substantially more resistance to excessive erosion in the Vortex body.

The improved sleeve is available in two lengths: 6 ft. and 15 ft.

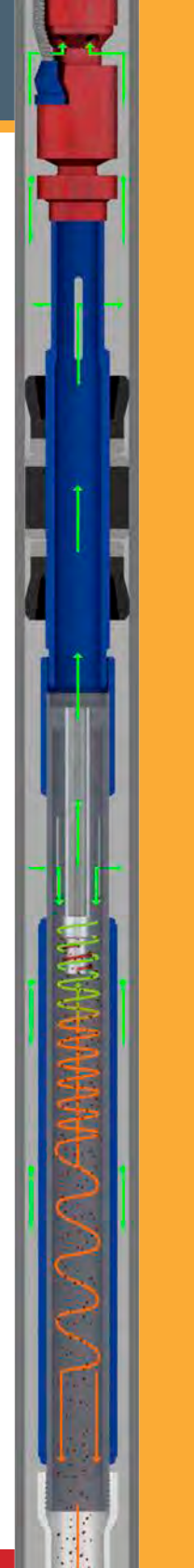
BENEFITS

- *Reduces sand cutting problems.*
- *Reduces the frequency of workovers and the lost production associated with them.*
- *Boronizing provides a greater surface density which is resistant to excessive corrosion from H2S and CO2.*
- *Boronization is not a coating so there is no reduction of the i.d.*

Longer sleeve provide a most effective protection by keeping the centrifugal wave inside the double-wall high resistance sleeve

Use your device by scanning the QR code

AUGMENTED REALITY

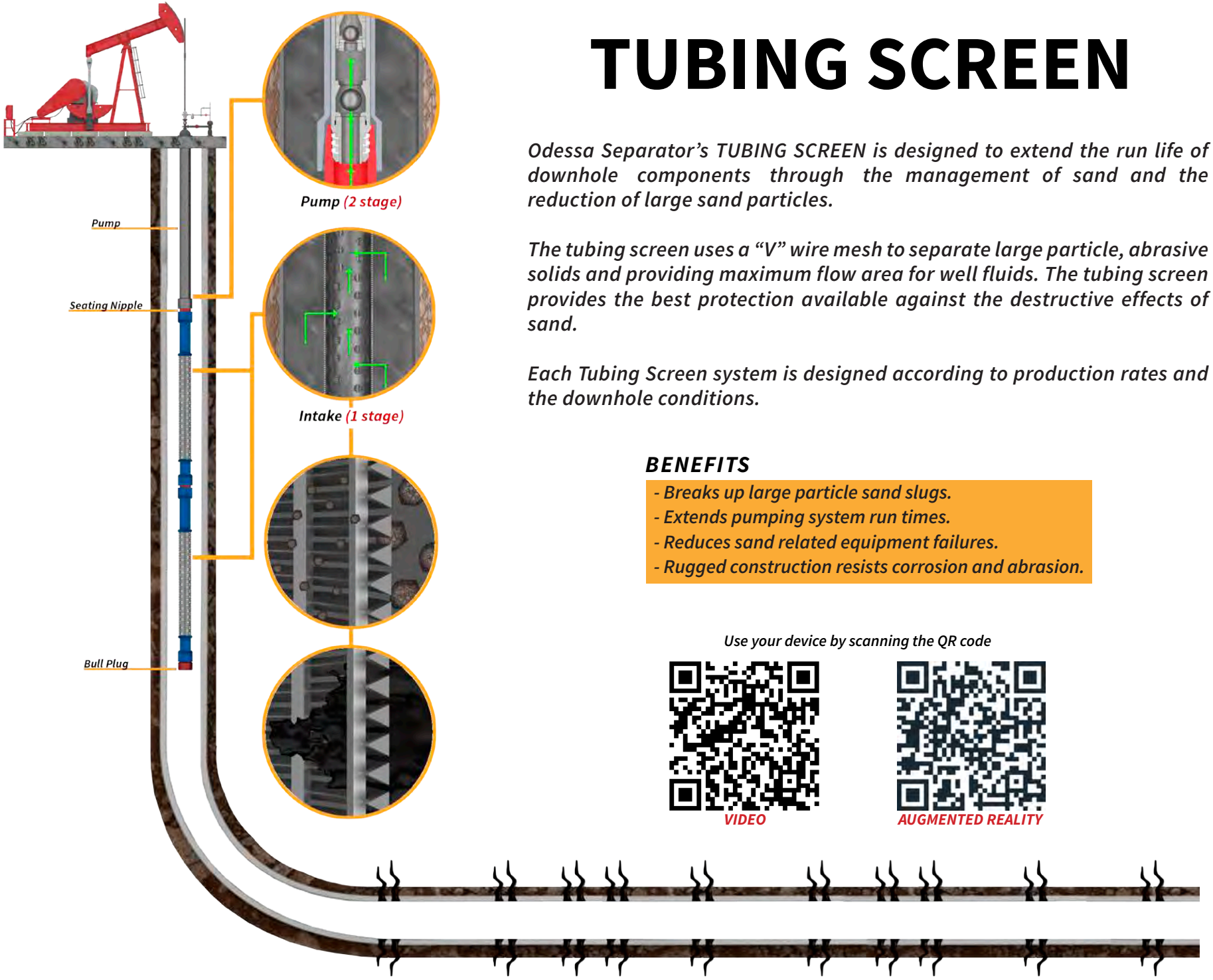


TUBING SCREEN

Odessa Separator's TUBING SCREEN is designed to extend the run life of downhole components through the management of sand and the reduction of large sand particles.

The tubing screen uses a "V" wire mesh to separate large particle, abrasive solids and providing maximum flow area for well fluids. The tubing screen provides the best protection available against the destructive effects of sand.

Each Tubing Screen system is designed according to production rates and the downhole conditions.



BENEFITS

- *Breaks up large particle sand slugs.*
- *Extends pumping system run times.*
- *Reduces sand related equipment failures.*
- *Rugged construction resists corrosion and abrasion.*

Use your device by scanning the QR code

VIDEO

AUGMENTED REALITY

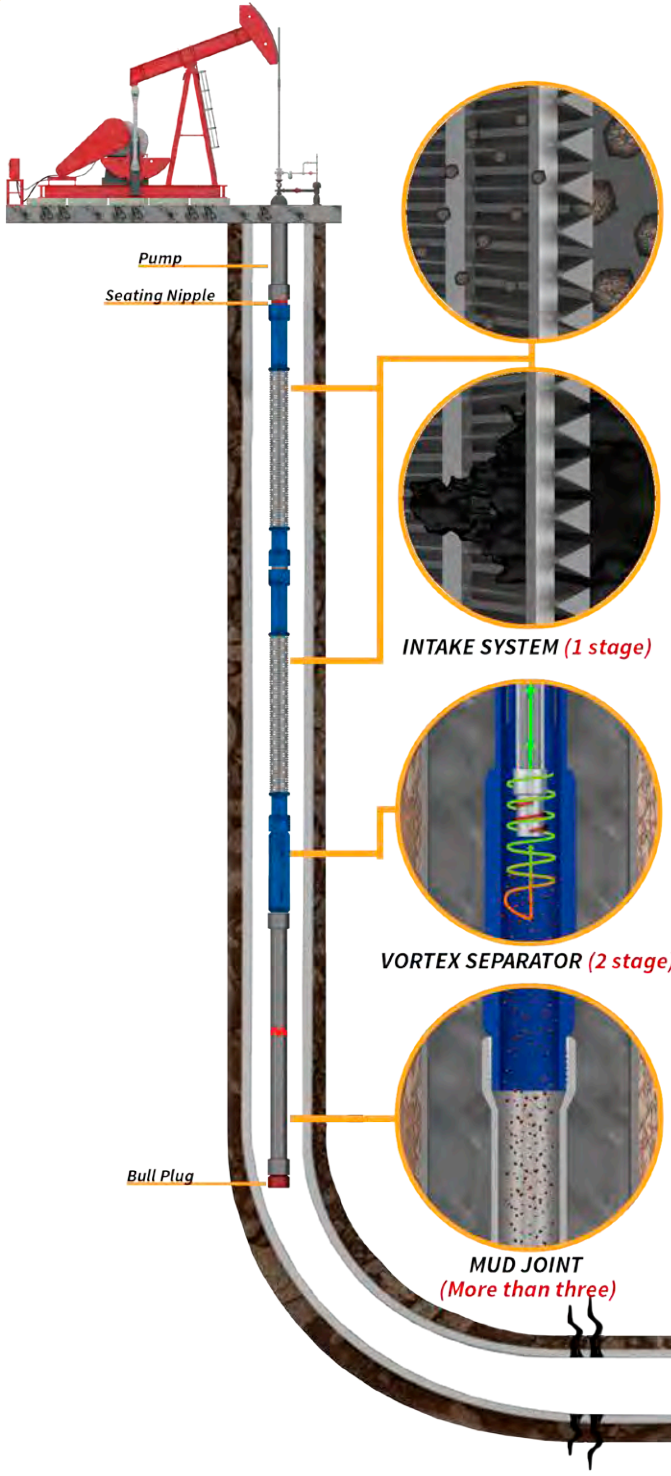
HOW IT WORKS

SCREEN VORTEX DESANDER

The Screen Vortex Desander is designed specifically for wells where high lifting costs are a result of sand problems.

The OSI Vortex Sand Shield technology, which employs centrifugal force to achieve maximum separation efficiency, can be combined with the OSI Tubing Screen or the OSI Super Perf to achieve two-stage sand separation. This system has been successfully proven in multiple installations worldwide.

The Screen Vortex Desander is a versatile system that can be combined with other OSI tools solids control and gas separation to greatly improve the performance of artificial lift systems.



BENEFITS

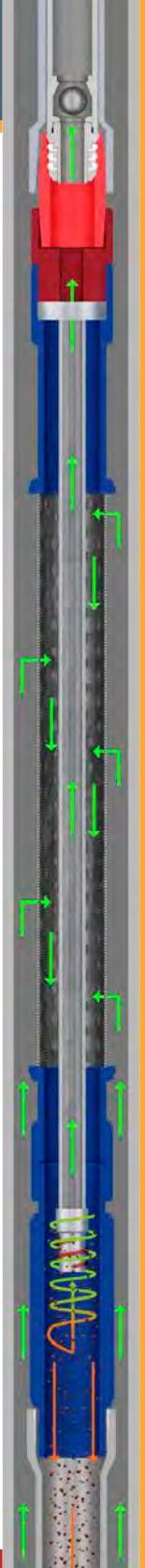
- Lower lifting costs, reduces downtime and greater operating efficiency.
- Reduced pump failures resulting from sand damage.
- Two-stage sand separation.
- Centrifugal force greatly increases sand separation efficiency.

Use your device by scanning the QR code

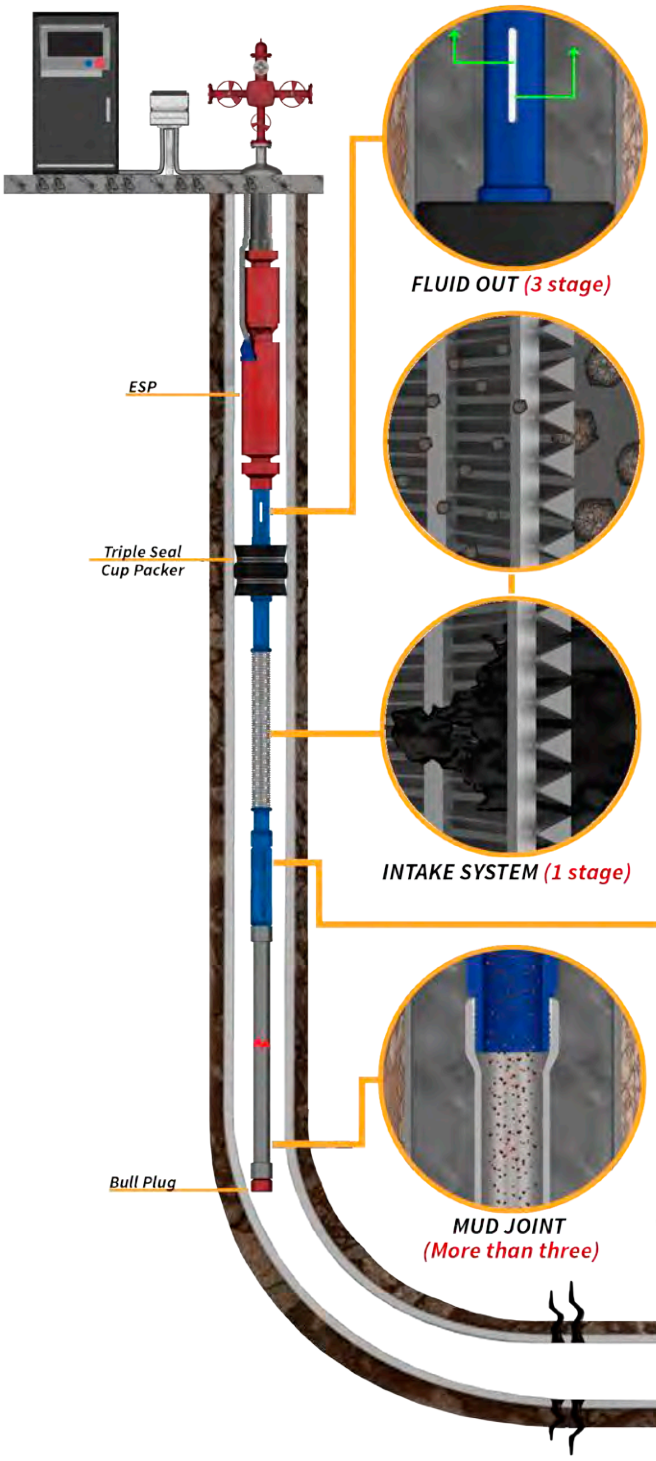
VIDEO

AUGMENTED REALITY

HOW IT WORKS



ESP SCREEN VORTEX DESANDER



The ESP Screen Vortex Desander is the most effective tool in the market to control sand problems in ESP wells. This technology combines the capacity of the Tubing Screen to separate coarse to medium particles with the Vortex able to separate fine particles using centrifugal force. The new design provides a longer run time when is combined with the Top Bypass Valve.

The ESP Screen Vortex Desander is installed below the ESP sensor, mechanical packer, or a shroud without any loss of separation efficiency

BENEFITS

- *Lower lifting costs, reduced downtime and greater operating efficiency.*
- *Reduced pump failures resulting from sand damage.*
- *Two-stage sand separation.*
- *Centrifugal force greatly increases sand separation efficiency.*

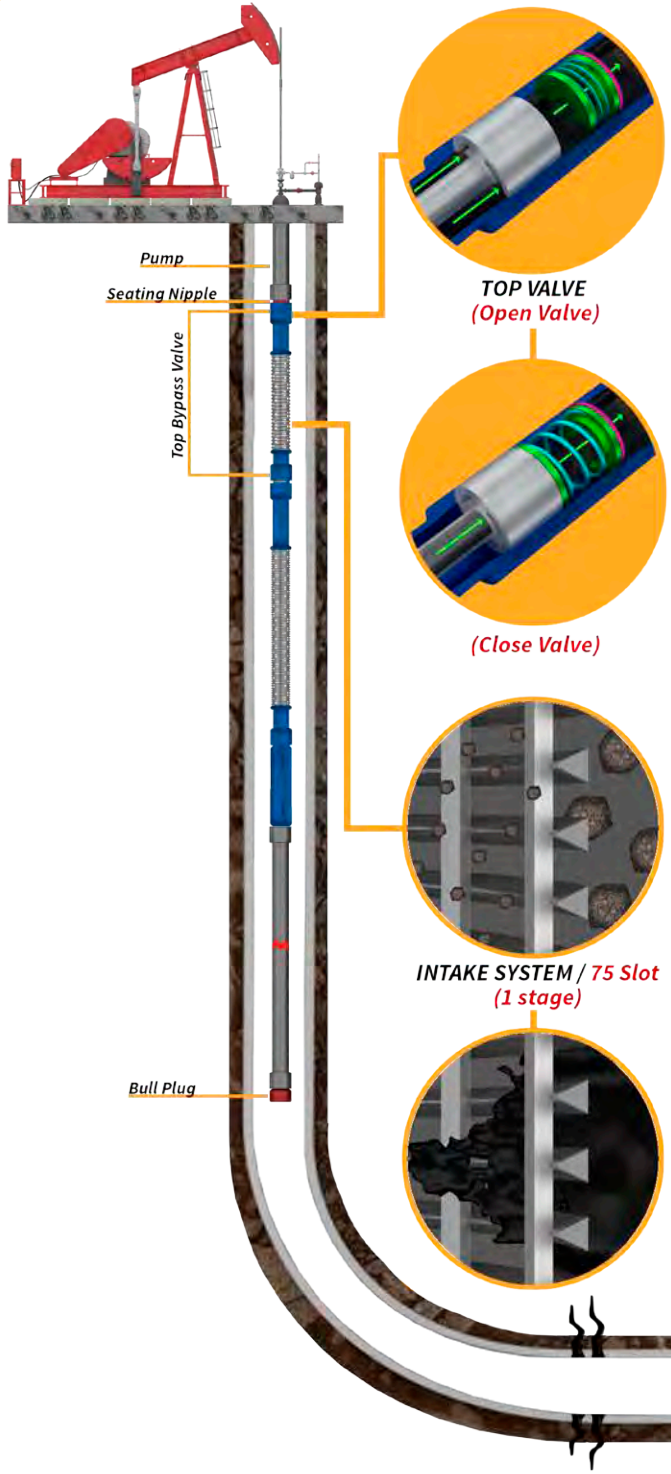
Use your device by scanning the QR code

VIDEO

AUGMENTED REALITY

HOW IT WORKS

TOP BYPASS VALVE



Odessa Separator's TOP BYPASS VALVE provides extended pump run times by ensuring fluid flow, to the pump, when the pump intakes plug off due to sand, scale, or paraffin.

Installed above the sand separation tools, the TOP BYPASS VALVE opens at a pressure differential of greater than 33 psi.

The open valve allows continued fluid flow, bypassing the plugged screens. The Top Bypass Valve can be combined with any OSI bottom hole assembly.

Increase pump runtimes

BENEFITS

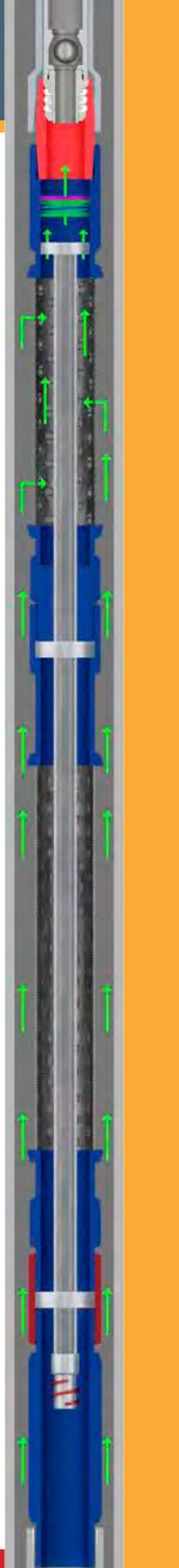
- *Prevent workovers due to solids failures increasing productive time.*
- *Extends run times by allowing continued fluid flow.*
- *Provides large particle filtration.*

Use your device by scanning the QR code

VIDEO

AUGMENTED REALITY

HOW IT WORKS

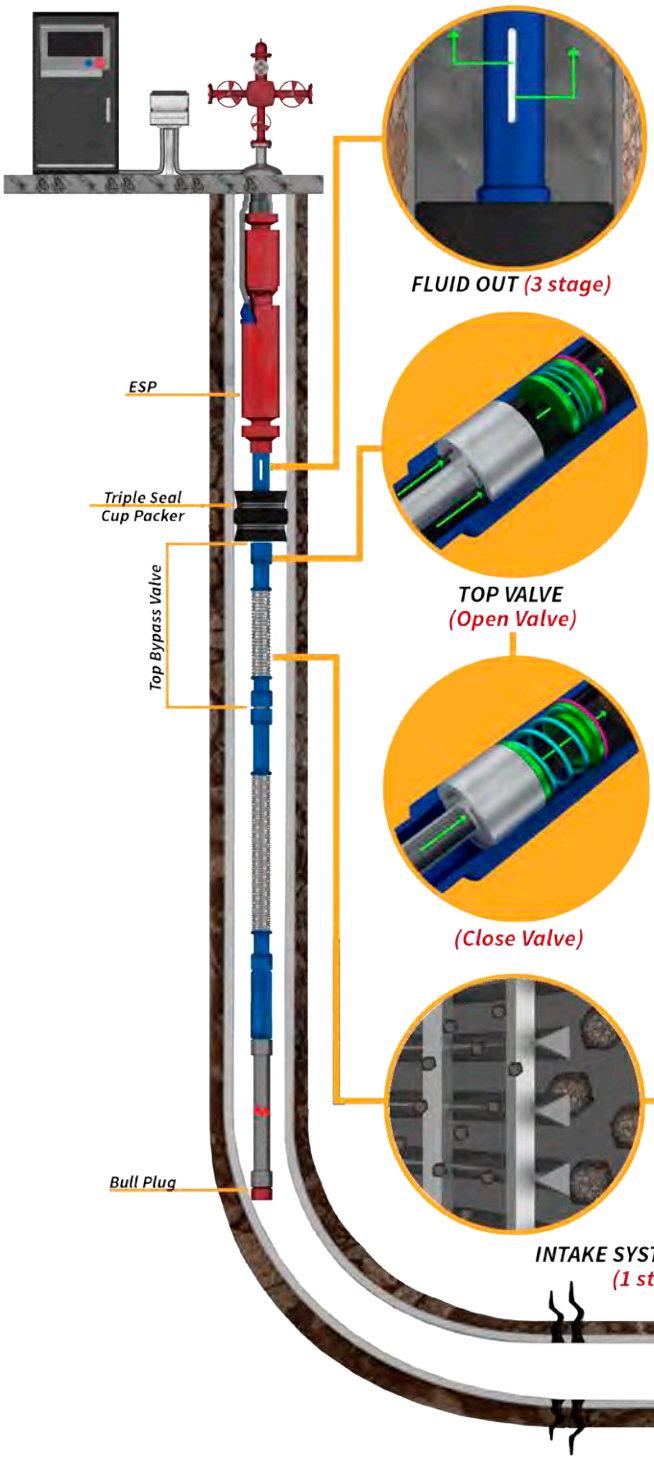


ESP TOP BYPASS VALVE

Odessa Separator's TOP BYPASS VALVE provides extended pump run times by ensuring fluid flow, to the pump, when the pump intakes plug off due to sand, scale, or paraffin.

Installed above the sand separation tools, the TOP BYPASS VALVE opens at a pressure differential of greater than 33 psi. The open valve allows continued fluid flow, bypassing the plugged screens.

The Top Bypass Valve can be combined with any OSI bottom hole assembly.



BENEFITS

- Prevent workovers due to solids failures increasing productive time.
- Extends run times by allowing continued fluid flow.
- Two-stage sand separation.
- Centrifugal force greatly increases sand separation efficiency.

Use your device by scanning the QR code

VIDEO

AUGMENTED REALITY

HOW IT WORKS

FLUID

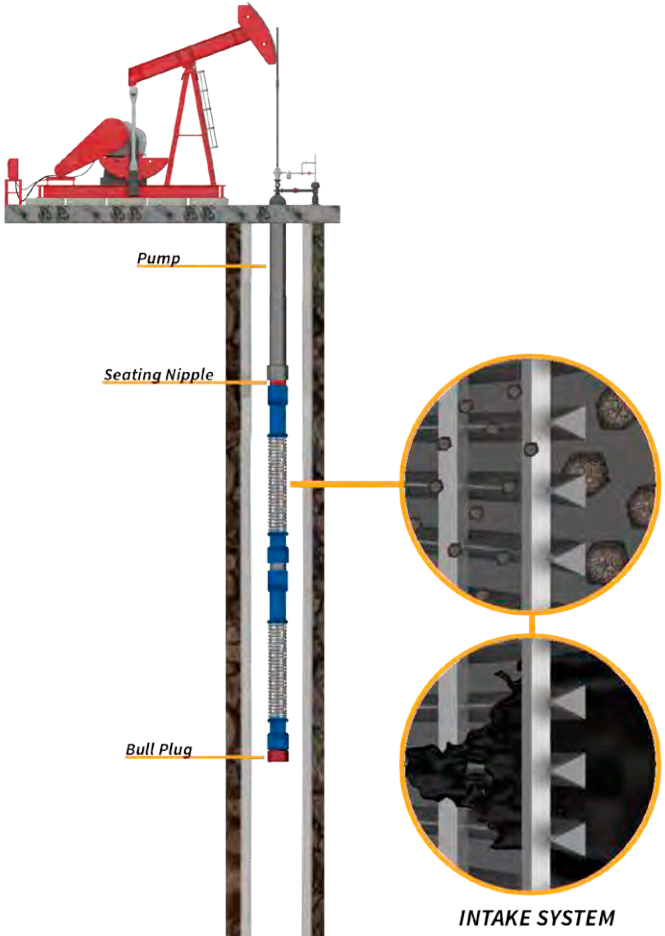
SAND PARTICLES

SUPER PERF

OSI's SUPER PERF is a considerable improvement from conventional perforated subs. The Super Perf breaks up and blends sand slugs from the formation allowing improved sand management downhole.

The large opening mesh screen provides 27 times the open area of a traditional perforated sub preventing intake restrictions.

The Super Perf is applicable to any artificial lift system and can be combined with other OSI fluid conditioning tools.



INTAKE SYSTEM

BENEFITS

- *Greatly reduces downhole equipment failures.*
- *Greater pumping system efficiency and increased production.*
- *Corrosion resistant.*

OSI's SUPER PERF is a high efficiency filtration system that homogenizes sand slugs from the formation. The sand screen is corrosion resistant while reducing flow restrictions.

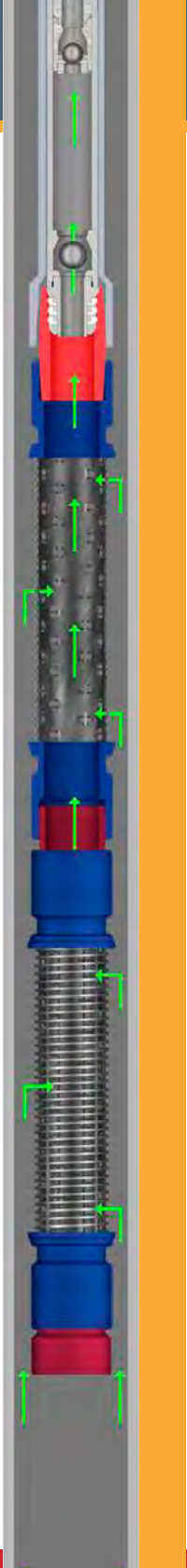
Use your device by scanning the QR code

VIDEO

AUGMENTED REALITY

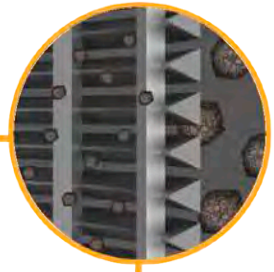
HOW IT WORKS

FLUID



PUMP GUARD SCREEN

Pump *(2 stage)*



INTAKE SYSTEM
(1 stage)

- *V-shaped mesh design allows the separation of abrasive solids while maximizing fluid flow area.*
- *The outer wrap "V" shaped wire and ribs are constructed of corrosion-resistant, stainless steel.*
- *Precise electric resistance welding provides high-strength joints.*
- *Clog-resistant slot design.*
- *Large intake area reduces pressure drops while a small contact area reduces flow friction.*

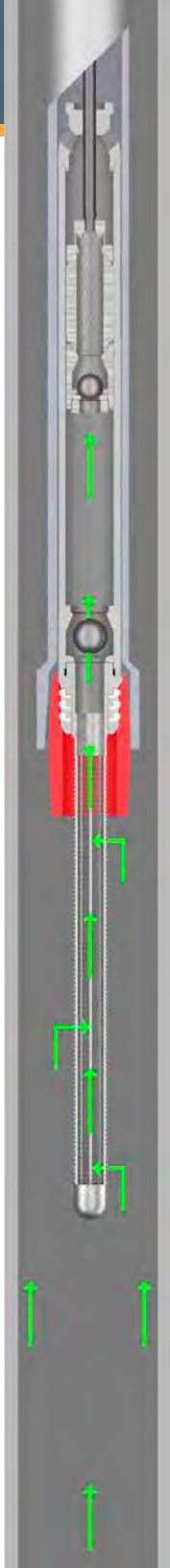
The OSI PUMP GUARD SCREEN is a low-cost solution to sand problems and is available in a large selection of lengths and slot sizes

Use your device by scanning the QR code

VIDEO

AUGMENTED REALITY

HOW IT WORKS

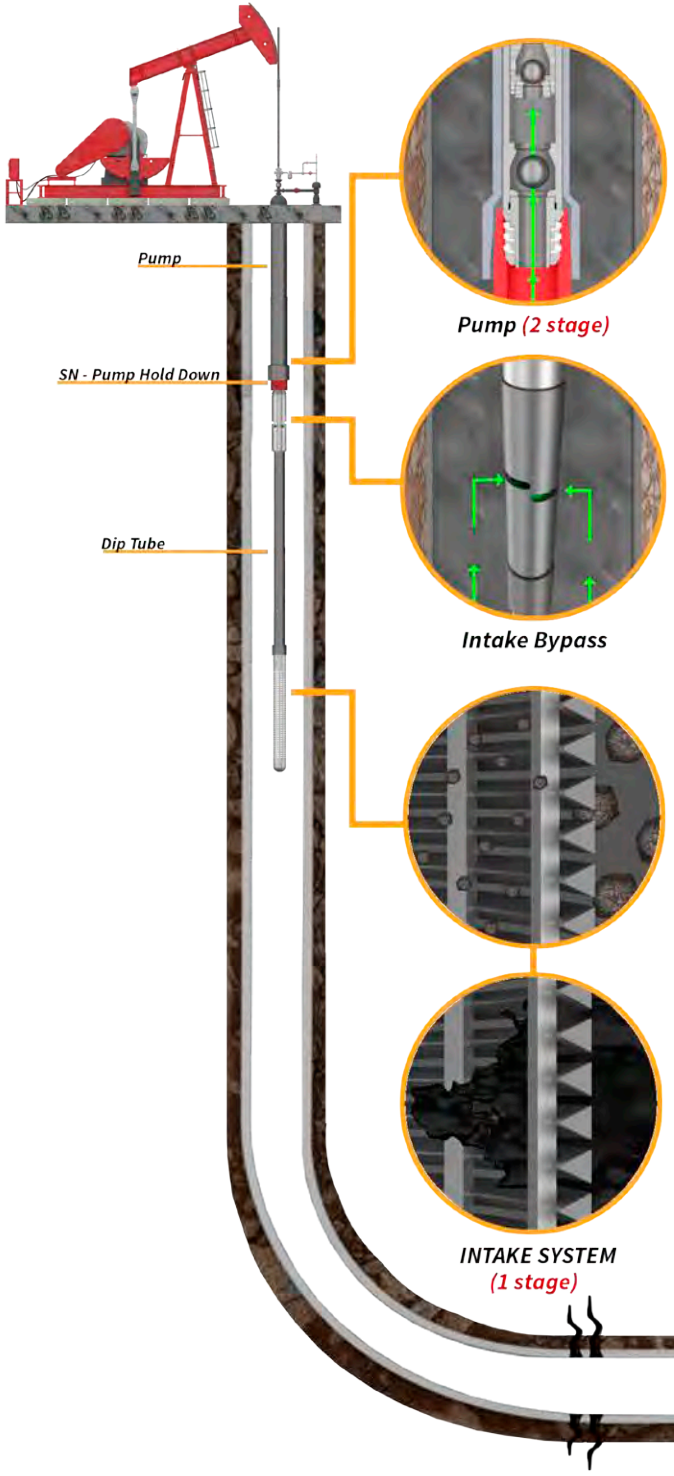


DIP TUBE BYPASS

OSI's DIP TUBE BYPASS provides significant savings over pulling the well! The bypass extends pump run times in wells where dip tubes are prone to plugging off due to sand and solids.

When the dip tube intake is plugged off, a bypass opens, providing a secondary flow path, postponing intervention.

The Dip Tube Bypass can be applied to any dip tube filtration tool.



SIZES

- 1'' x 9''
- 1 - 1/4'' x 9''
- 1 - 1/2'' x 9''

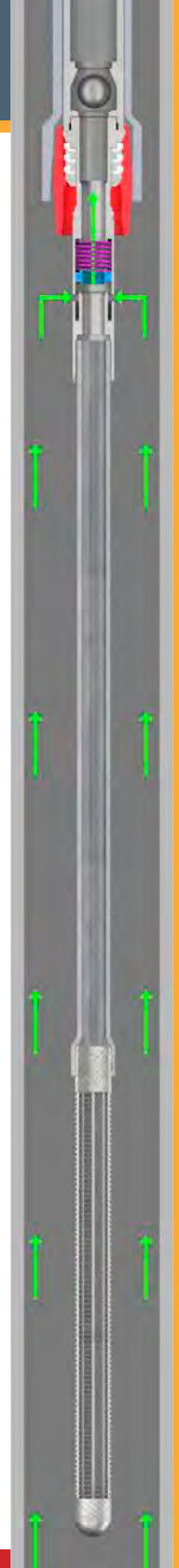
Provides significant savings over pulling the well!

Keep it in the hole longer

Use your device by scanning the QR code

AUGMENTED REALITY

HOW IT WORKS

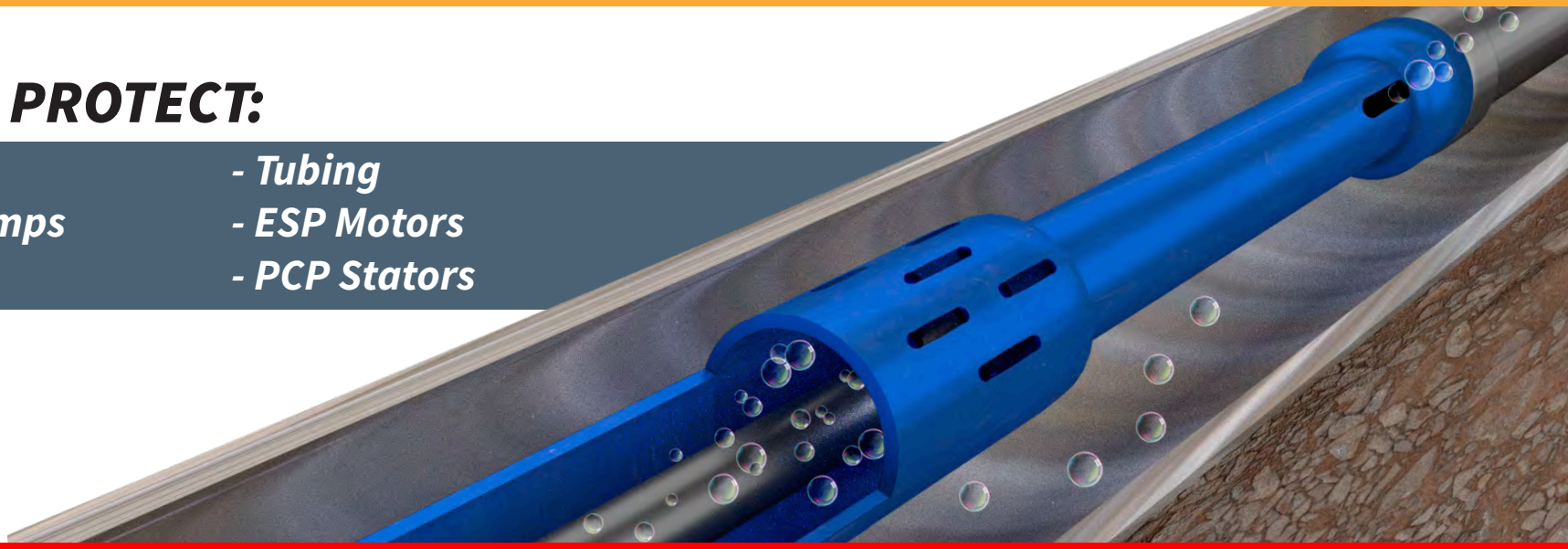


Oilfield Challenges GAS

Gas interference is a major problem for operators.
Gas interference that is not effectively dealt with can lead to fluid pounding, gas locking, and corrosion that will ultimately result in pumping system failures

OSI TOOLS PROTECT:

- Rods
- Downhole Pumps
- PCP Rotors
- Tubing
- ESP Motors
- PCP Stators



THE OSI SOLUTION

Highly trained and experienced OSI personnel will work closely with operators to design effective fluid conditioning systems.
OSI's extensive and unique line of gas separation tools can provide solutions for the most difficult downhole conditions.

- OSI TOOL -

LONG RUN TIMES

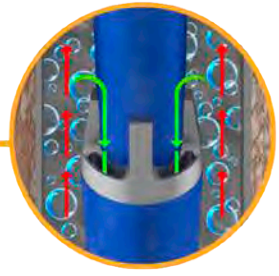
OSI gas separators are a guarantee of improving performance and reducing operating costs.

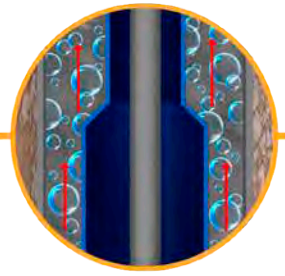
SLOTTED ON TOP GAS SEPARATOR

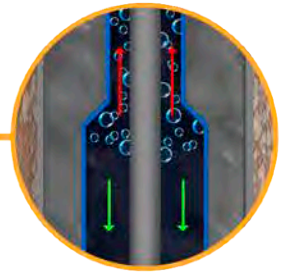
OSI's SLOTTED ON TOP GAS SEPARATOR represents a significant design improvement from traditional gas separators. The intake slots have been positioned at the top of the separator, requiring the fluid flow to change directions upon entering the separator.

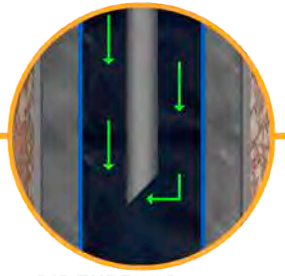
The change of direction in the fluid flow breaks gas out of solution, into the annulus. Any solution gas remaining in the fluid will break out of solution as it flows through the separator and out the venting ports. This simple, effective, and low-cost separator is easily installed below the seating nipple and can be combined with a Vortex Desander to provide solids separation.

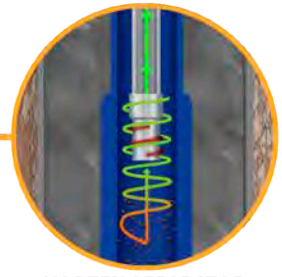
In fluid and ascend (4 stage)


Intake / side view (2 stage)


GAS SEPARATION (1 stage)


GAS SEPARATION (3 stage)


DIP TUBE 45 Degrees (5 stage)


VORTEX SEPARATOR

BENEFITS

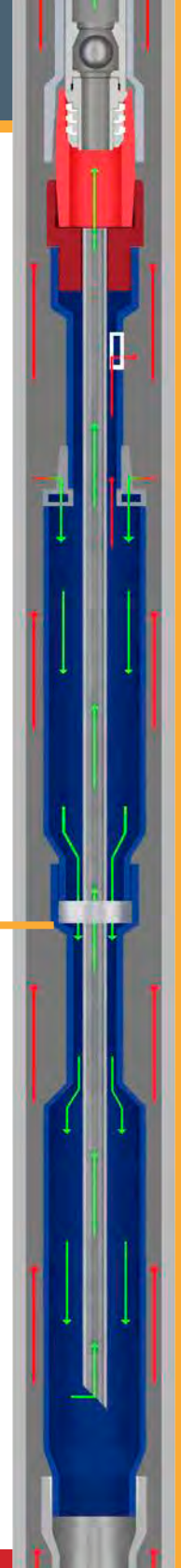
- It can be installed with Vortex Desander.
- Reduces or eliminates gas interference and gas locking.
- Provides multiple stages of gas separation.

Use your device by scanning the QR code

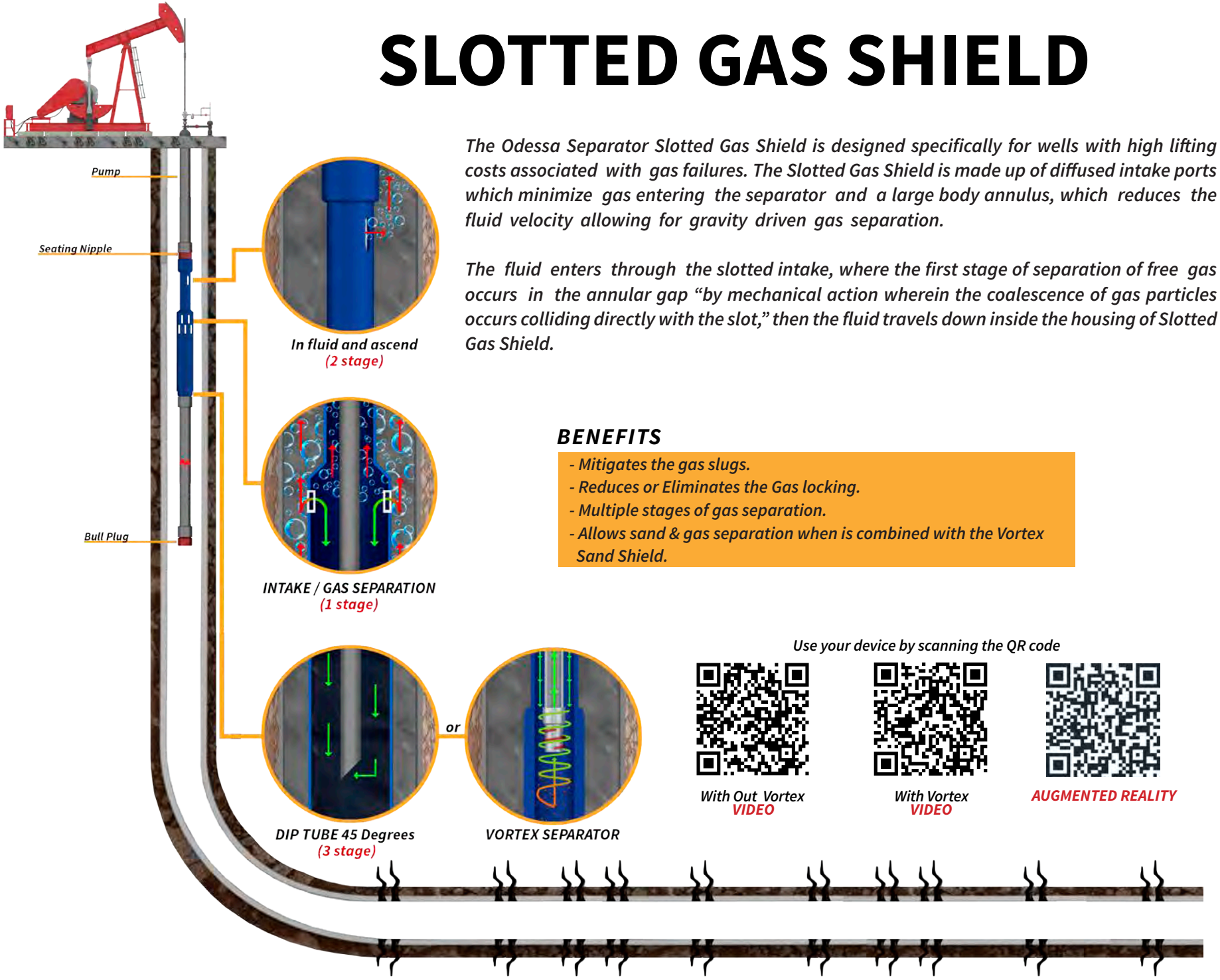
AUGMENTED REALITY


Dual Flow System

HOW IT WORKS



SLOTTED GAS SHIELD



The Odessa Separator Slotted Gas Shield is designed specifically for wells with high lifting costs associated with gas failures. The Slotted Gas Shield is made up of diffused intake ports which minimize gas entering the separator and a large body annulus, which reduces the fluid velocity allowing for gravity driven gas separation.

The fluid enters through the slotted intake, where the first stage of separation of free gas occurs in the annular gap "by mechanical action wherein the coalescence of gas particles occurs colliding directly with the slot," then the fluid travels down inside the housing of Slotted Gas Shield.

BENEFITS

- *Mitigates the gas slugs.*
- *Reduces or Eliminates the Gas locking.*
- *Multiple stages of gas separation.*
- *Allows sand & gas separation when is combined with the Vortex Sand Shield.*

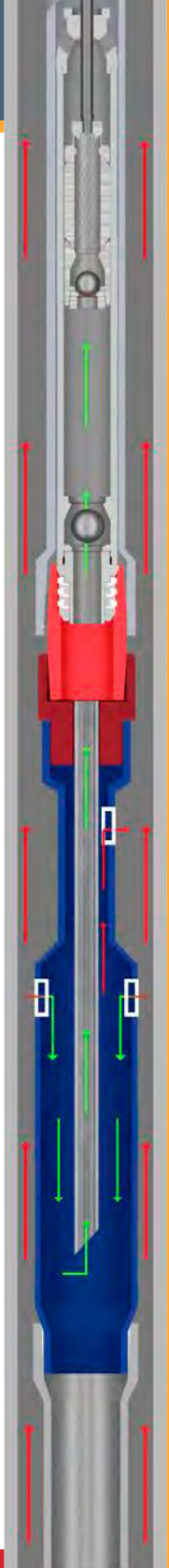
Use your device by scanning the QR code

With Out Vortex
VIDEO

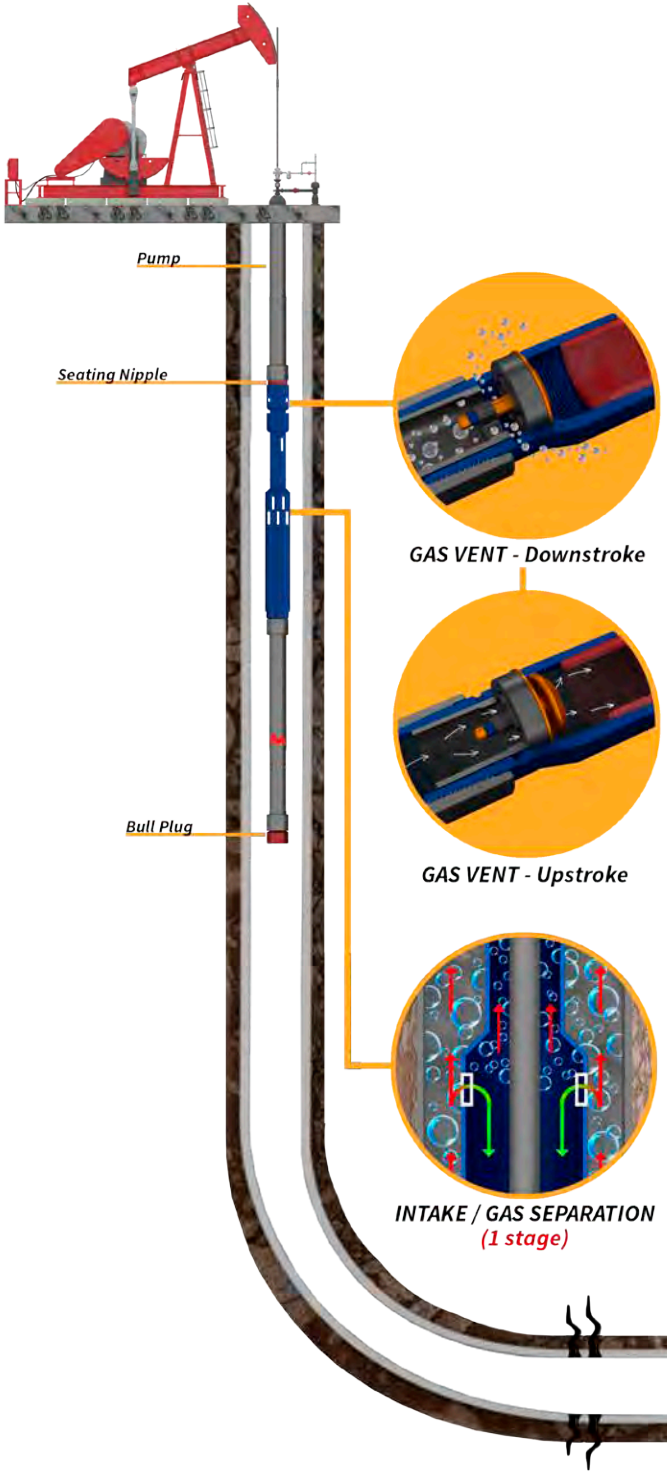
With Vortex
VIDEO

AUGMENTED REALITY

HOW IT WORKS



GAS VENT



GAS VENT - Downstroke

GAS VENT - Upstroke

INTAKE / GAS SEPARATION
(1 stage)

The GAS VENT is a component that is engineered to optimize gas separation. It is designed to be compatible with any manufacturers' gas separator. The Gas Vent releases free gas inside the dip tube, reducing gas interference when the capacity of the gas separator is maxed out.

The GAS VENT is attached to the top of a gas separator and works in synchronous with the pump. During the upstroke, when the standing valve is open, the Gas Vent valve is closed, keeping the gas in the top of the separator. During the downstroke, when the standing valve is closed, the Gas Vent is open allowing gas to flow upward into the annulus.

BENEFITS

- *Reduces gas interference when the gas separator capacity is maxed out.*
- *Improves pumping efficiency.*
- *Reduces the potential for gas locking.*

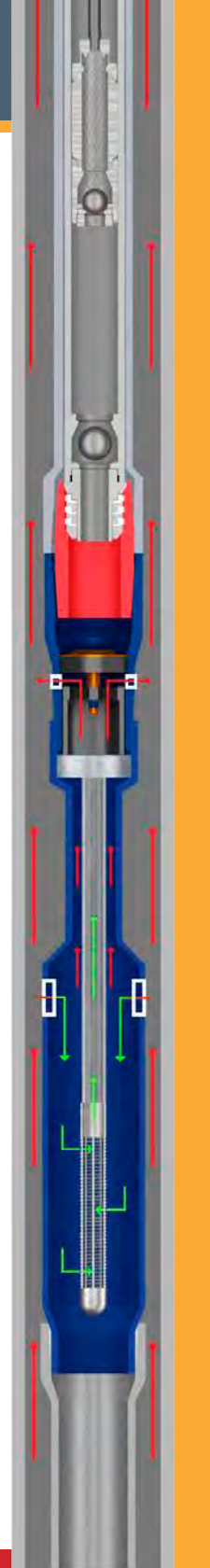
Use your device by scanning the QR code

AUGMENTED REALITY

HOW IT WORKS

WITHOUT GAS

WITH GAS



COMBINATION TOOL

The OSI COMBINATION TOOL is designed and engineered to maximize artificial lift system efficiency. Using OSI's patented "DUAL FLOW" connections, the COMBINATION TOOL is a versatile and effective means of fluid conditioning by controlling sand, gas, and solids.

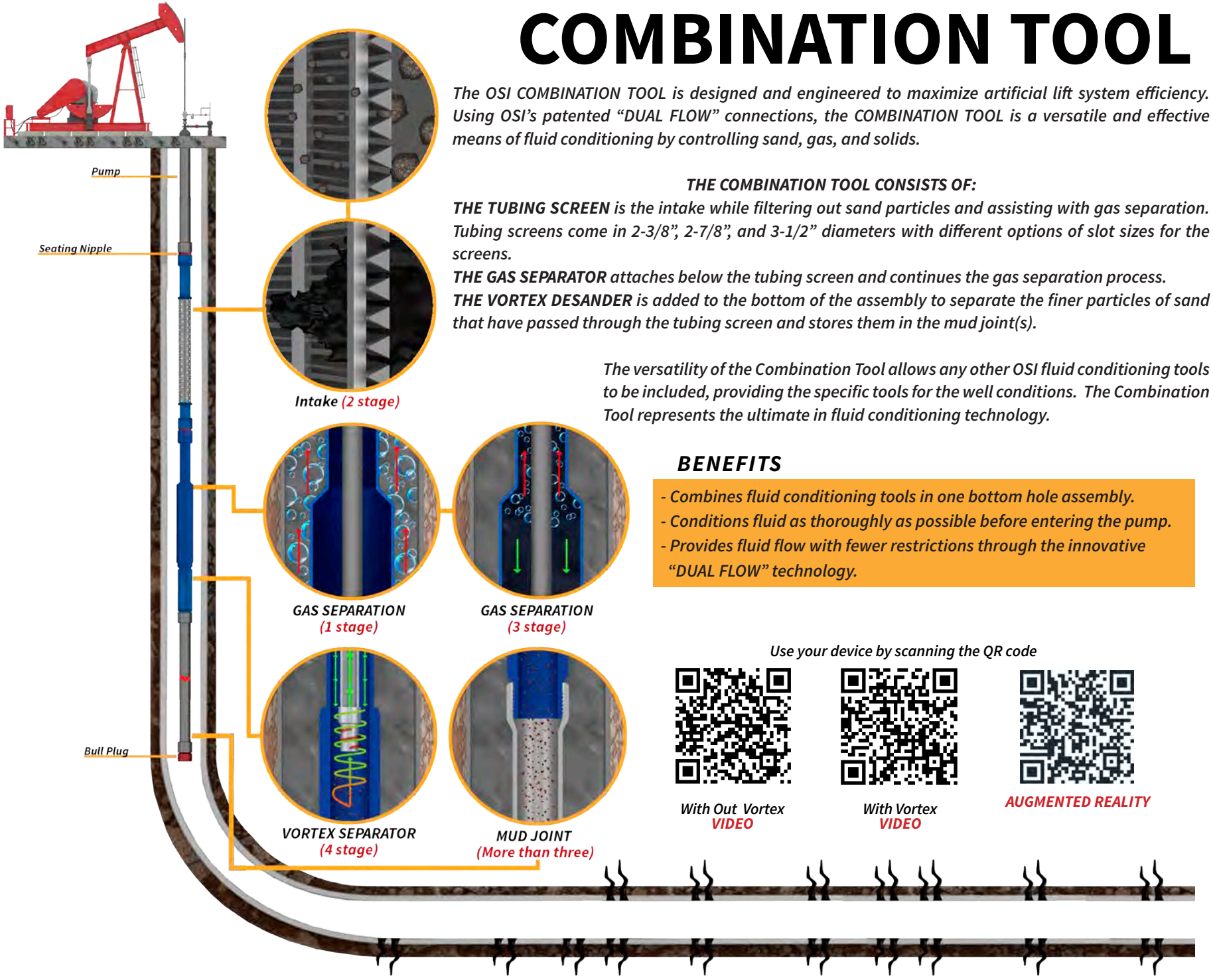
THE COMBINATION TOOL CONSISTS OF:

THE TUBING SCREEN *is the intake while filtering out sand particles and assisting with gas separation. Tubing screens come in 2-3/8", 2-7/8", and 3-1/2" diameters with different options of slot sizes for the screens.*

THE GAS SEPARATOR *attaches below the tubing screen and continues the gas separation process.*

THE VORTEX DESANDER *is added to the bottom of the assembly to separate the finer particles of sand that have passed through the tubing screen and stores them in the mud joint(s).*

The versatility of the Combination Tool allows any other OSI fluid conditioning tools to be included, providing the specific tools for the well conditions. The Combination Tool represents the ultimate in fluid conditioning technology.



BENEFITS

- *Combines fluid conditioning tools in one bottom hole assembly.*
- *Conditions fluid as thoroughly as possible before entering the pump.*
- *Provides fluid flow with fewer restrictions through the innovative "DUAL FLOW" technology.*

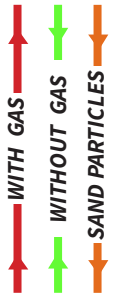
Use your device by scanning the QR code

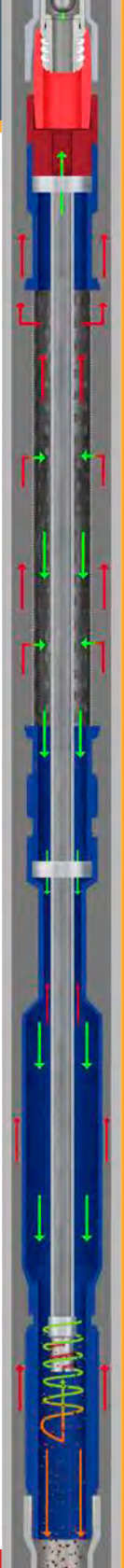
With Out Vortex **VIDEO**

With Vortex **VIDEO**

AUGMENTED REALITY

HOW IT WORKS





CHAMBER TYPE GAS SEPARATOR

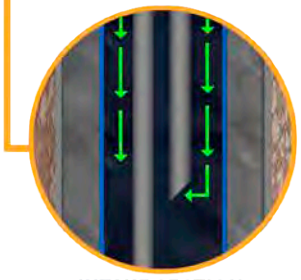
Pump

Seating Nipple

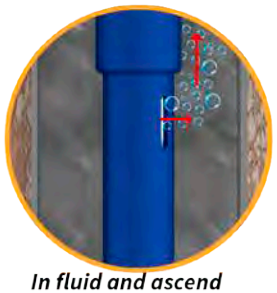
Bull Plug

GAS VENT - Downstroke

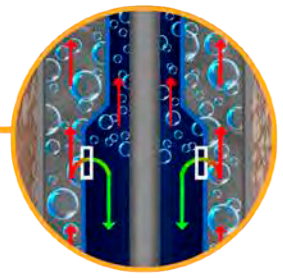
GAS VENT - Upstroke



INTAKE SECTION
(3 stage)



In fluid and ascend
(2 stage)



INTAKE / GAS SEPARATION
(1 stage)

Using OSI patented technology, the CHAMBER TYPE GAS SEPARATOR provides two independent gas separation chambers in one tool.

This separator was engineered to provide high separation capacity without the necessity for a packer or packer cups, eliminating the possibility of a stuck packer downhole.

The optional OSI GAS VENT, working in synchronous with the pump, purges the dip tube of free gas, delivering gas free liquid to the pump. During the downtime, between pump cycles, the GAS VENT purges the dip tube of gas accumulation.

SIZES

2 - 7/8" x 3 - 1/2"
2 - 7/8" x 4"
2 - 7/8" x 4 - 1/2"
3 - 1/2" x 4 - 1/2"
3 - 1/2" x 5 - 1/2"

Use your device by scanning the QR code

AUGMENTED REALITY

HOW IT WORKS

WITHOUT GAS

WITH GAS

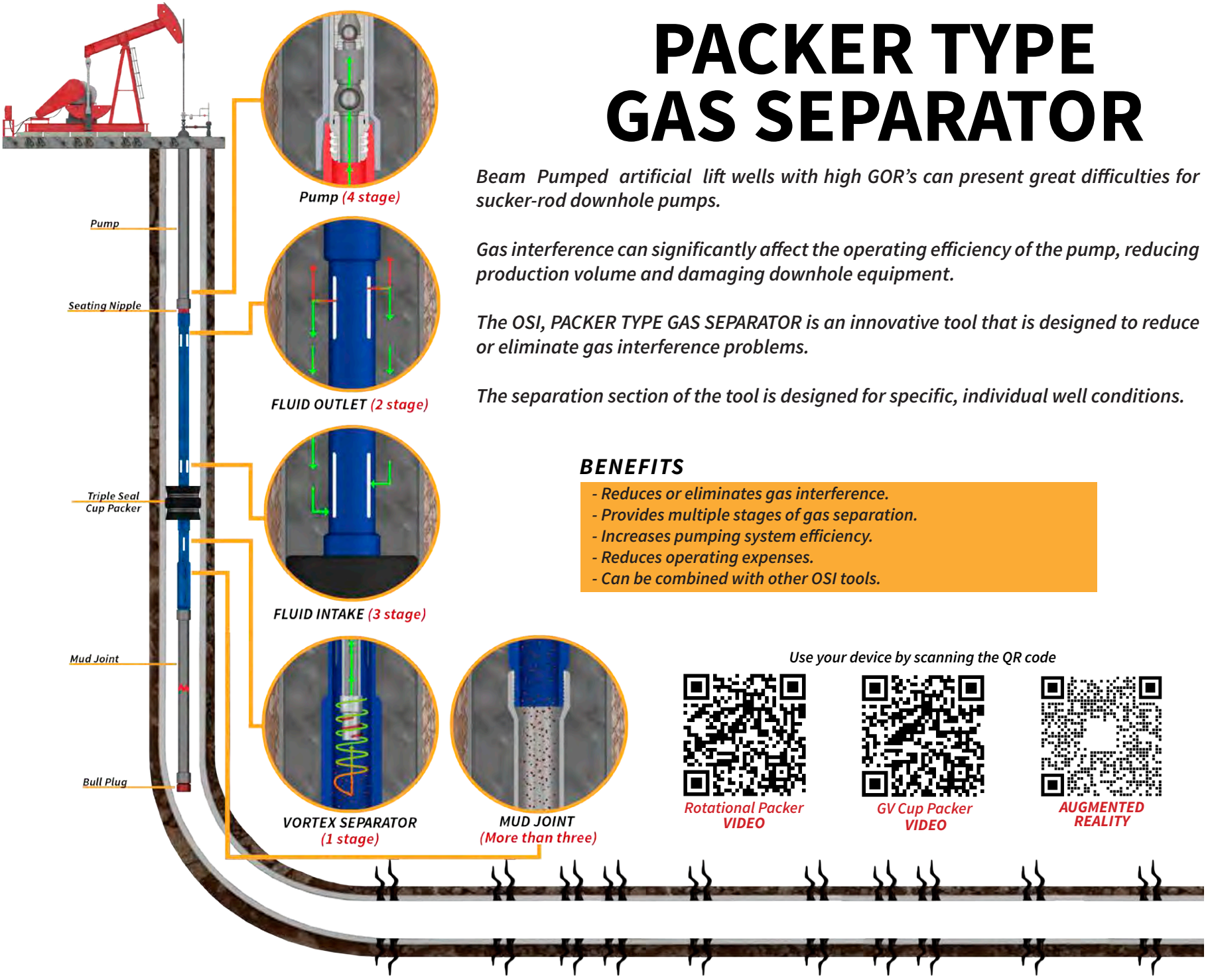
PACKER TYPE GAS SEPARATOR

Beam Pumped artificial lift wells with high GOR's can present great difficulties for sucker-rod downhole pumps.

Gas interference can significantly affect the operating efficiency of the pump, reducing production volume and damaging downhole equipment.

The OSI, PACKER TYPE GAS SEPARATOR is an innovative tool that is designed to reduce or eliminate gas interference problems.

The separation section of the tool is designed for specific, individual well conditions.



BENEFITS

- Reduces or eliminates gas interference.
- Provides multiple stages of gas separation.
- Increases pumping system efficiency.
- Reduces operating expenses.
- Can be combined with other OSI tools.

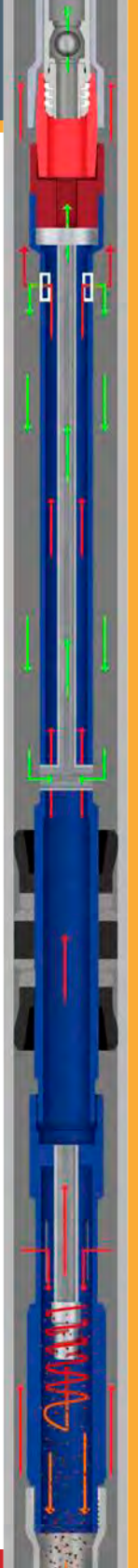
Use your device by scanning the QR code

Rotational Packer VIDEO

GV Cup Packer VIDEO

AUGMENTED REALITY

HOW IT WORKS



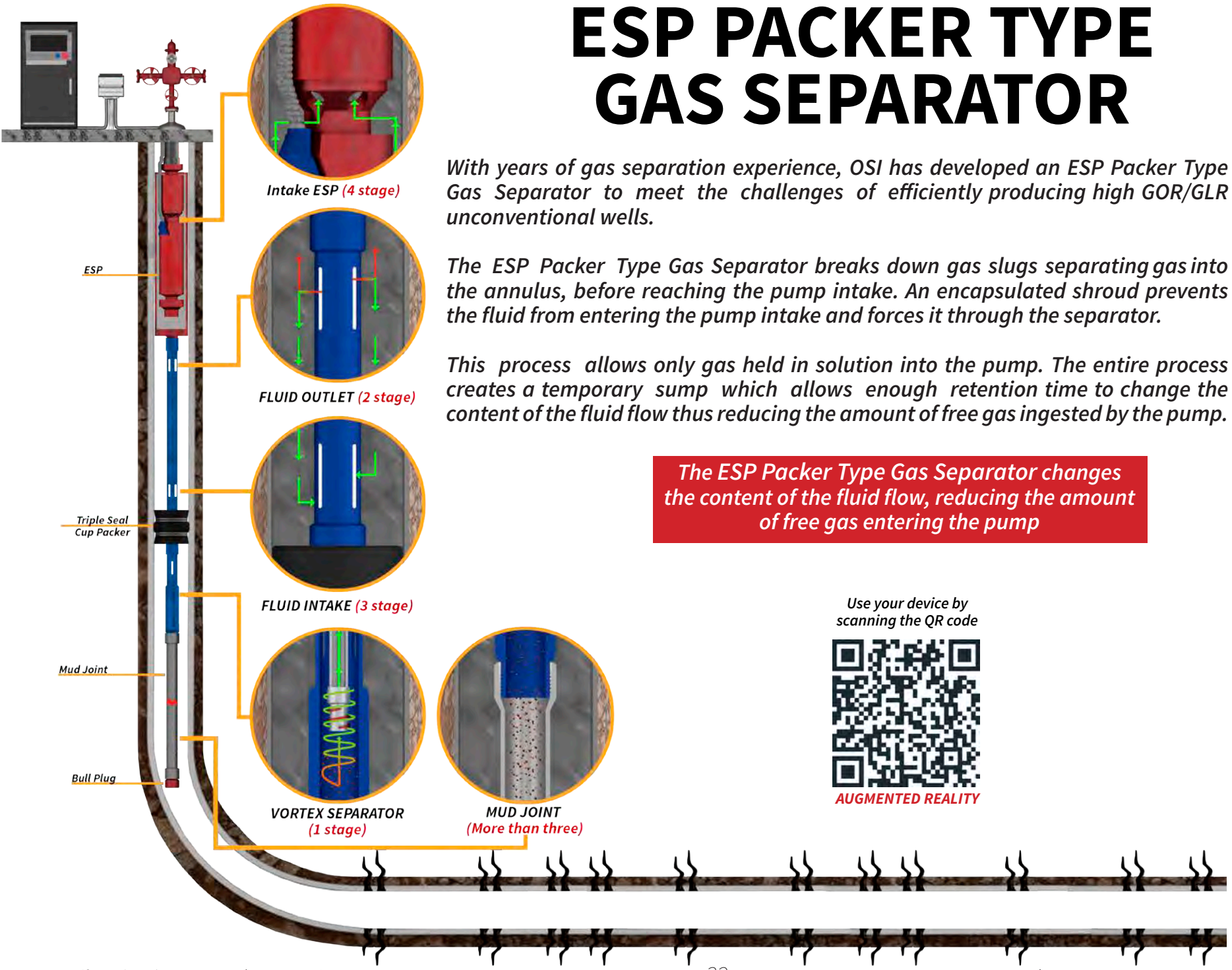
ESP PACKER TYPE GAS SEPARATOR

With years of gas separation experience, OSI has developed an ESP Packer Type Gas Separator to meet the challenges of efficiently producing high GOR/GLR unconventional wells.

The ESP Packer Type Gas Separator breaks down gas slugs separating gas into the annulus, before reaching the pump intake. An encapsulated shroud prevents the fluid from entering the pump intake and forces it through the separator.

This process allows only gas held in solution into the pump. The entire process creates a temporary sump which allows enough retention time to change the content of the fluid flow thus reducing the amount of free gas ingested by the pump.

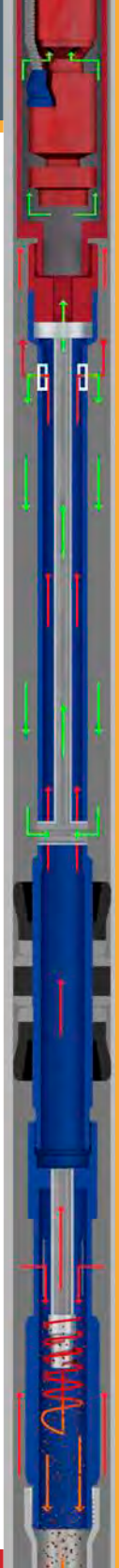
The ESP Packer Type Gas Separator changes the content of the fluid flow, reducing the amount of free gas entering the pump



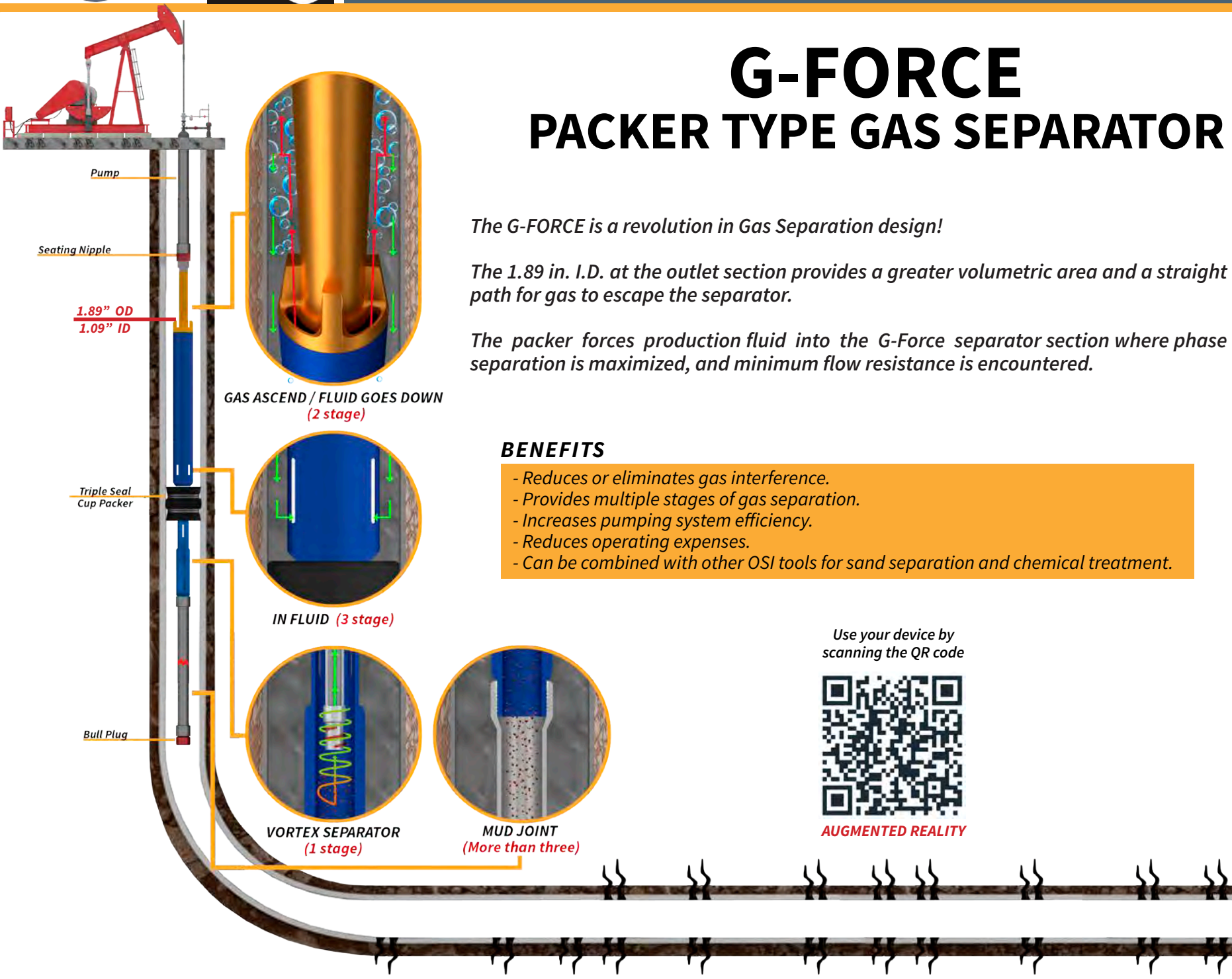
Use your device by scanning the QR code

AUGMENTED REALITY

HOW IT WORKS



G-FORCE
PACKER TYPE GAS SEPARATOR



The G-FORCE is a revolution in Gas Separation design!

The 1.89 in. I.D. at the outlet section provides a greater volumetric area and a straight path for gas to escape the separator.

The packer forces production fluid into the G-Force separator section where phase separation is maximized, and minimum flow resistance is encountered.

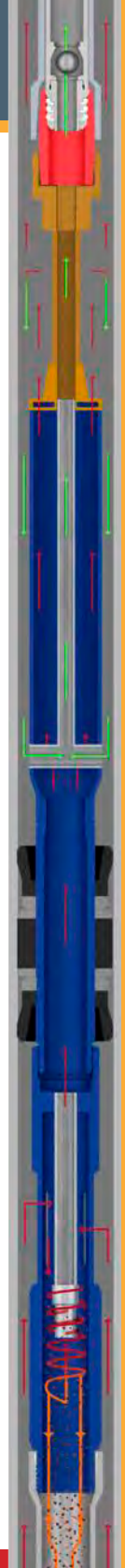
BENEFITS

- *Reduces or eliminates gas interference.*
- *Provides multiple stages of gas separation.*
- *Increases pumping system efficiency.*
- *Reduces operating expenses.*
- *Can be combined with other OSI tools for sand separation and chemical treatment.*

Use your device by scanning the QR code

AUGMENTED REALITY

HOW IT WORKS

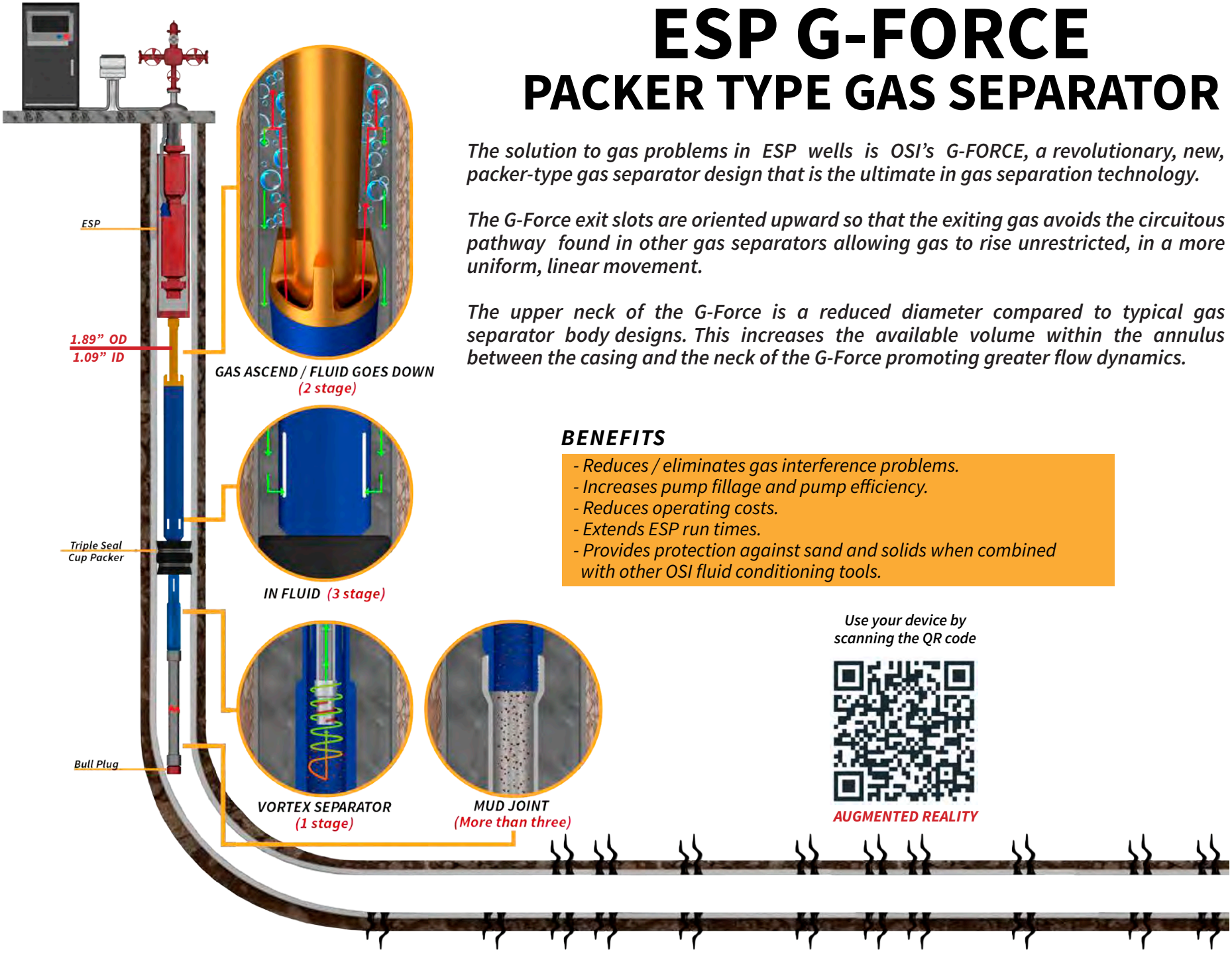


ESP G-FORCE
PACKER TYPE GAS SEPARATOR

The solution to gas problems in ESP wells is OSI's G-FORCE, a revolutionary, new, packer-type gas separator design that is the ultimate in gas separation technology.

The G-Force exit slots are oriented upward so that the exiting gas avoids the circuitous pathway found in other gas separators allowing gas to rise unrestricted, in a more uniform, linear movement.

The upper neck of the G-Force is a reduced diameter compared to typical gas separator body designs. This increases the available volume within the annulus between the casing and the neck of the G-Force promoting greater flow dynamics.



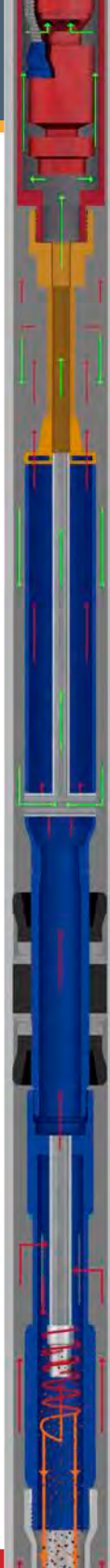
BENEFITS

- Reduces / eliminates gas interference problems.
- Increases pump fillage and pump efficiency.
- Reduces operating costs.
- Extends ESP run times.
- Provides protection against sand and solids when combined with other OSI fluid conditioning tools.

Use your device by scanning the QR code

AUGMENTED REALITY

HOW IT WORKS

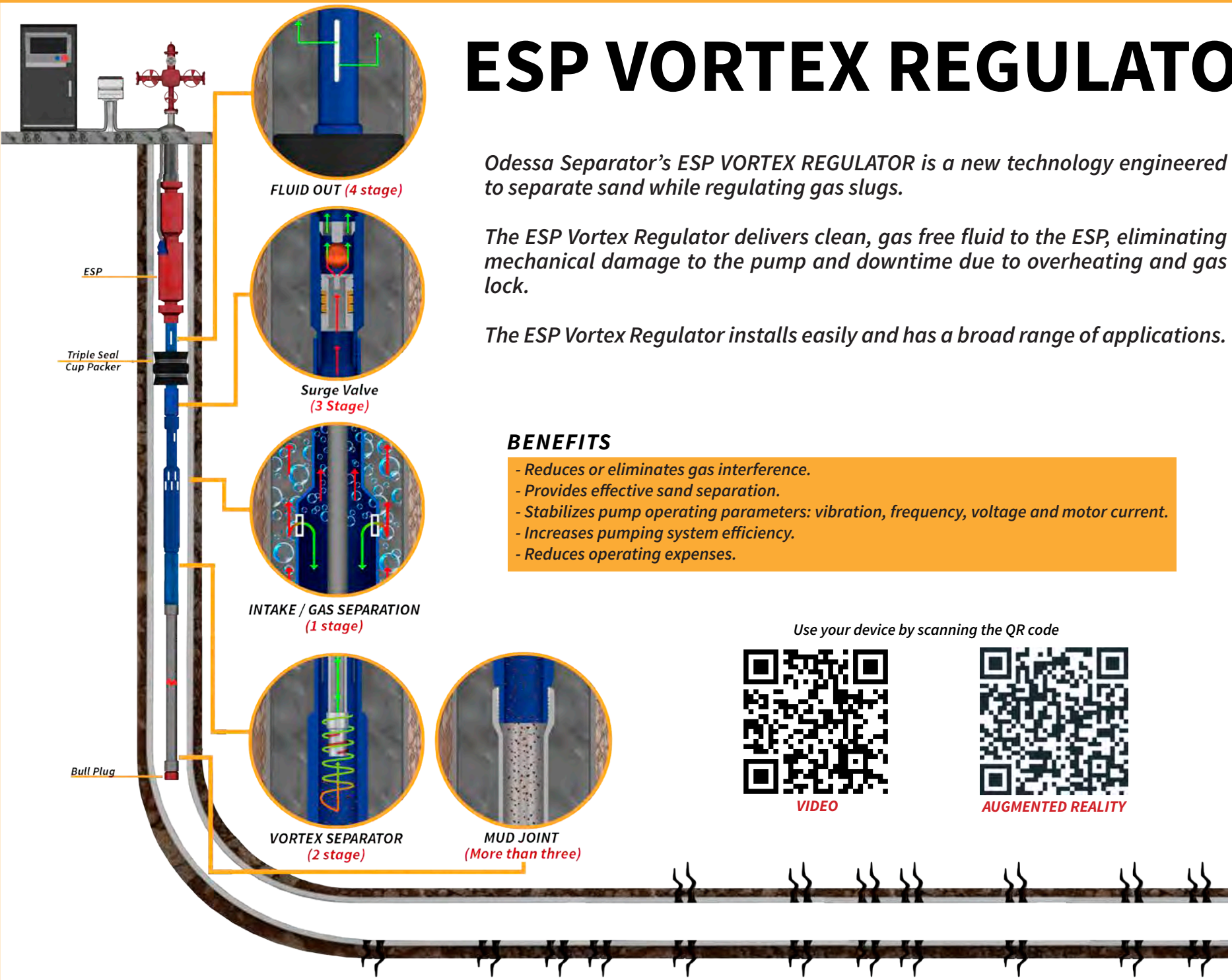


ESP VORTEX REGULATOR

Odessa Separator's ESP VORTEX REGULATOR is a new technology engineered to separate sand while regulating gas slugs.

The ESP Vortex Regulator delivers clean, gas free fluid to the ESP, eliminating mechanical damage to the pump and downtime due to overheating and gas lock.

The ESP Vortex Regulator installs easily and has a broad range of applications.



BENEFITS

- Reduces or eliminates gas interference.
- Provides effective sand separation.
- Stabilizes pump operating parameters: vibration, frequency, voltage and motor current.
- Increases pumping system efficiency.
- Reduces operating expenses.

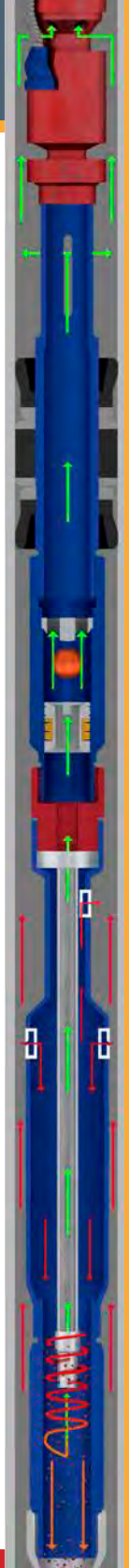
Use your device by scanning the QR code

VIDEO

AUGMENTED REALITY

HOW IT WORKS

WITH GAS
WITHOUT GAS
SAND PARTICLES

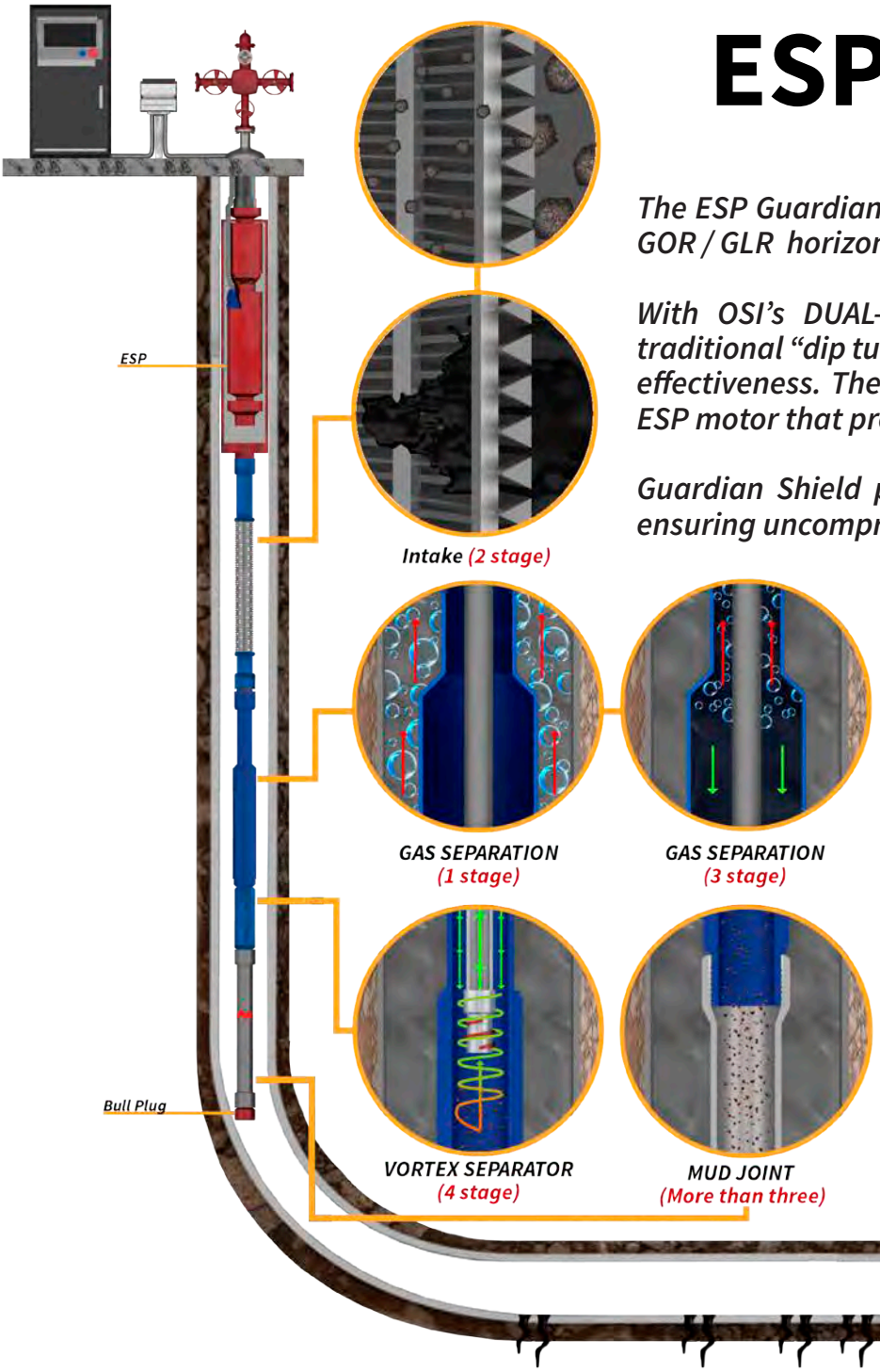


ESP GUARDIAN SHIELD

The ESP Guardian Shield significantly improves the performance of ESP's in high GOR / GLR horizontal wells.

With OSI's DUAL-FLOW Completion System technology, the inadequacies of traditional "dip tube" type assemblies are eliminated while optimizing operational effectiveness. The Guardian Shield includes an encapsulating shroud around the ESP motor that prevents overheating due to gas interference.

Guardian Shield provides multi-stage separation of gas and solids while ensuring uncompromised flow area versus standard dip tube tools.



BENEFITS

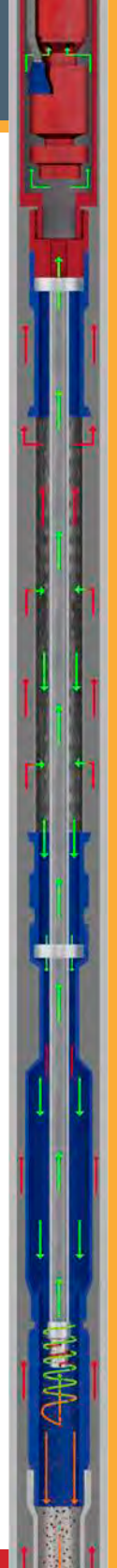
- Mitigates gas slugs.
- Reduces or eliminates gas locking.
- Lowers ESP motor operating temperature.
- Prevents random shutdowns.

Use your device by scanning the QR code

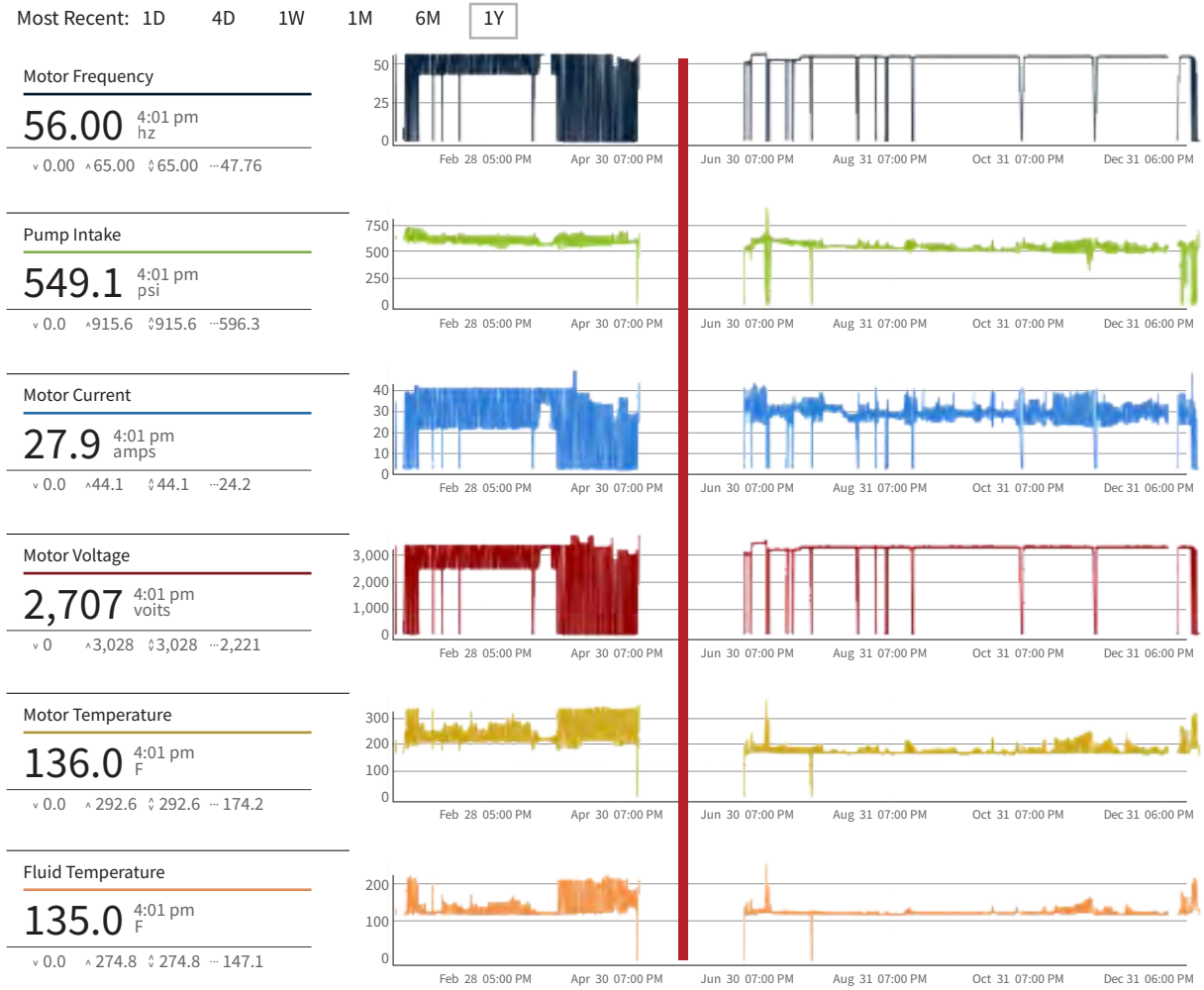
VIDEO

AUGMENTED REALITY

HOW IT WORKS



WELL PERFORMANCE BEFORE & AFTER OSI'S BHA INSTALLATION



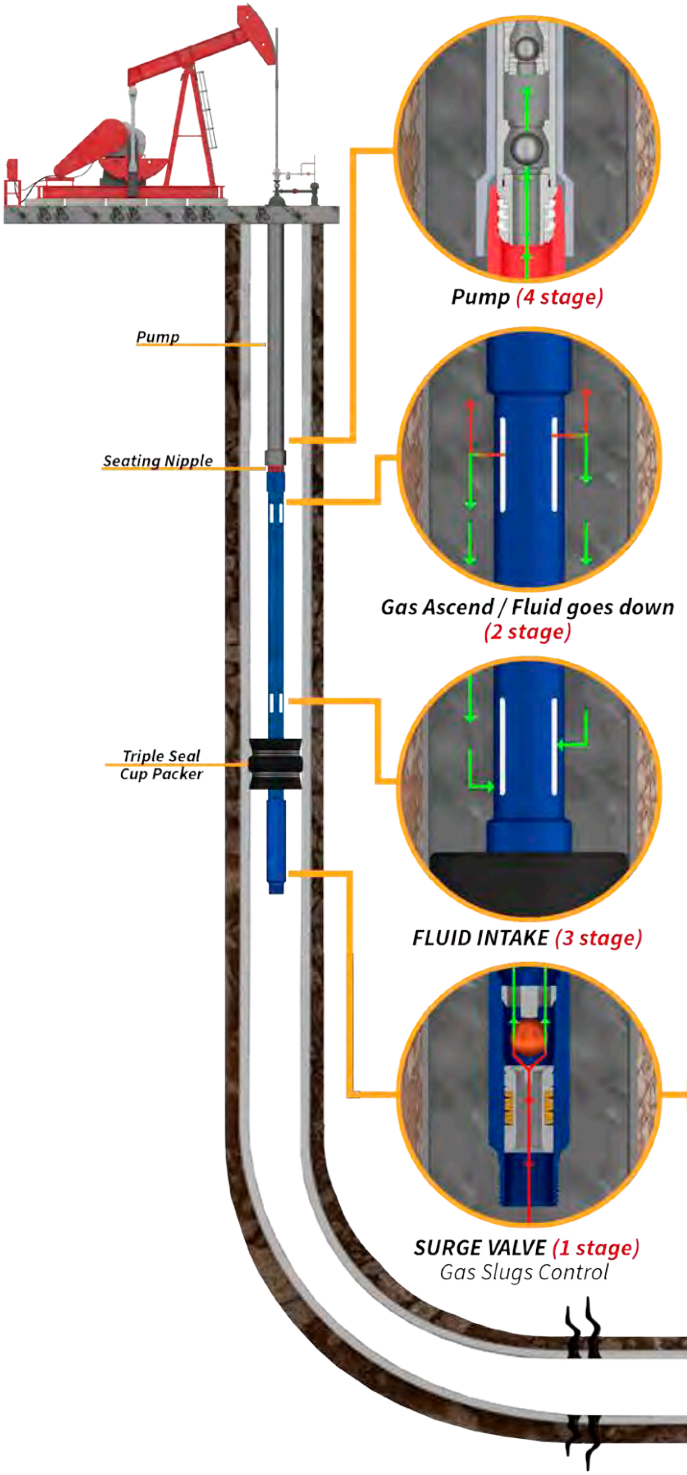
- Average motor temperature and Fluid temperature almost dropped by 100° F. Average motor temperature dropped from 182.3° F to 139.3° F after OSI's tool installation.

- The difference between motor temperature and fluid temperature is 2° F indicating high gas separation efficiency with negligible free gas presence.

- Along with that, the fluctuations in the temperature has reduced and become constant which hadn't been observed before.

- Motor frequency remained stable which prevented ESP shutdowns, increasing the pump efficiency.

SURGE VALVE

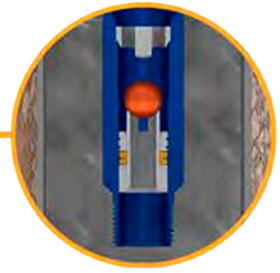


Pump (4 stage)

Gas Ascend / Fluid goes down (2 stage)

FLUID INTAKE (3 stage)

SURGE VALVE (1 stage)
Gas Slugs Control



SURGE VALVE
Packer Testing

The OSI SURGE VALVE is installed below a mechanical packer and designed to eliminate surging in wells.

It prevents surging by holding the fluid in the vertical section thus avoiding backflow when the gas slug leaves liquids behind.

An additional channel is provided in the tool to allow chemical injection below the packer.

Use your device by scanning the QR code

VIDEO

Use your device by scanning the QR code

AUGMENTED REALITY

BENEFITS

- Helps prevent gas interference.
- Reduces pump shutdowns.
- Breaks gas slugs and prevents surge production.

ADVANTAGES

- Allows chemical injection below the pump.
- Allows for hot oil treating above the packer.
- Allows testing the packer to assure that it is properly set.

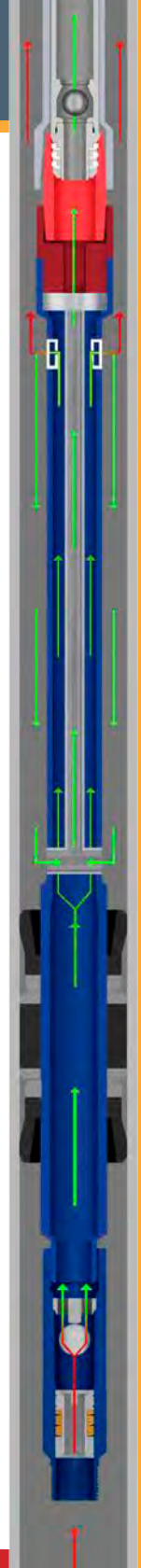
Technical Specifications

Sizes	Collar (in) OD	Length (in)
2-7/8"	4	23
3-1/2"	4.500	23

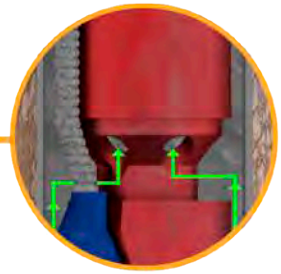
HOW IT WORKS

WITH GAS

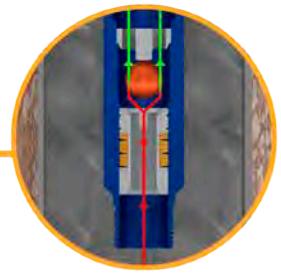
WITHOUT GAS



ESP SURGE VALVE



Intake ESP (2 stage)



SURGE VALE (1 stage)
Gas Separation

A common problem in horizontal well production is erratic fluid surging. A result of these slugs is inefficient pumping and flowback into the formation. OSI has engineered a tool that turns the energy generated by surges into an advantage for the producer.

The OSI ESP Surge Valve allows a fluid surge to flow one way through the valve then holds the surge above the valve, decreasing formation back pressure and increasing production.

ESP Surge Valve improves well profitability in both horizontal and vertical orientations. The system is applicable to many different lift applications, including electric submersible pump (ESP), rod pump, and gas lift.

BENEFITS

- Helps prevent gas interference.
- Reduces pump shutdowns.
- Breaks gas slugs and prevents surge production.

ADVANTAGES

- Allows chemical injection below the pump.
- Allows for hot oil treating above the packer.
- Allows testing the packer to assure that it is properly set.

Use your device by scanning the QR code

VIDEO

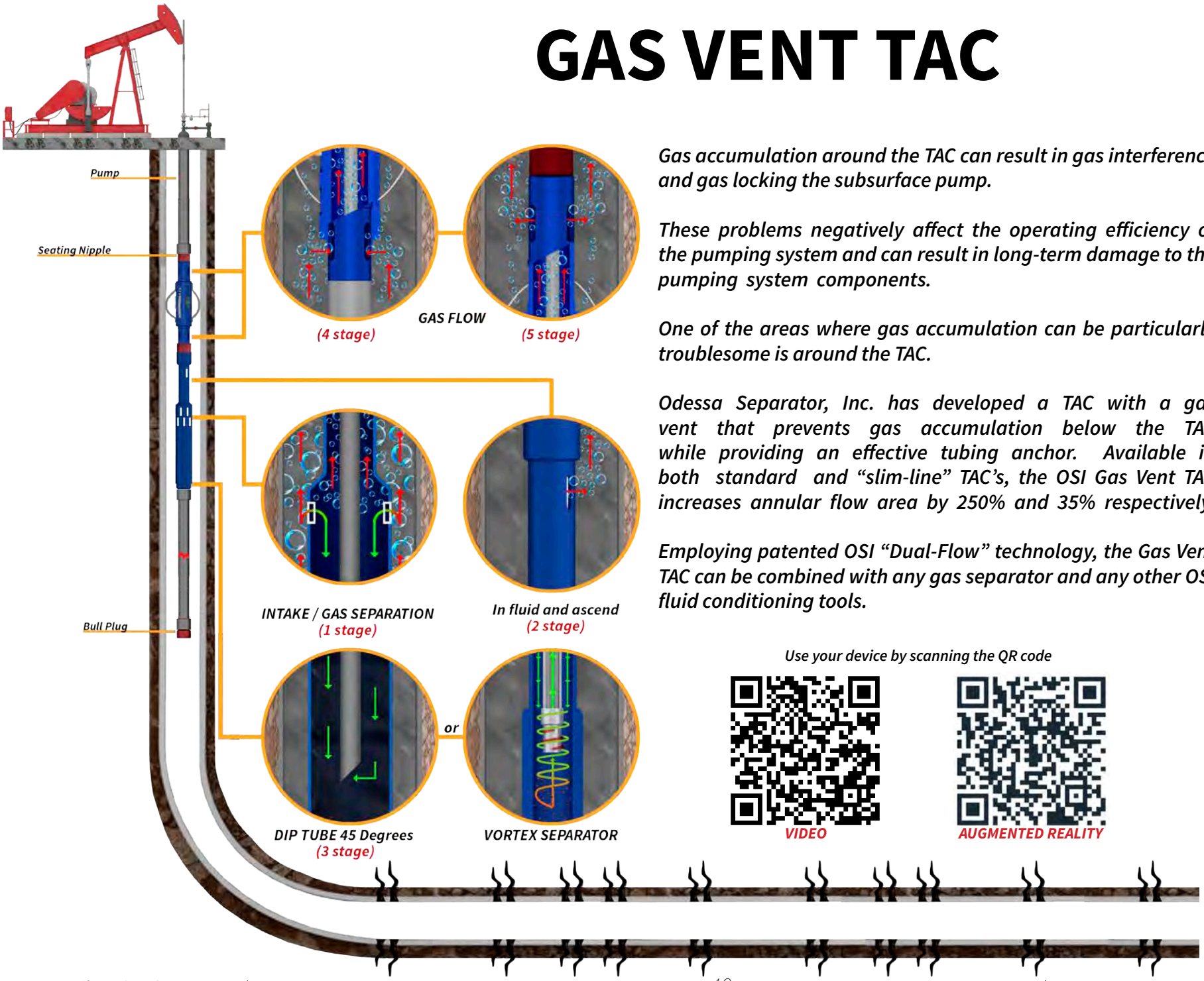
AUGMENTED REALITY

Technical Specifications

Sizes	Collar (in) OD	Length (in)
2-7/8"	4	23
3-1/2"	4.500	23

HOW IT WORKS

GAS VENT TAC



Gas accumulation around the TAC can result in gas interference and gas locking the subsurface pump.

These problems negatively affect the operating efficiency of the pumping system and can result in long-term damage to the pumping system components.

One of the areas where gas accumulation can be particularly troublesome is around the TAC.

Odessa Separator, Inc. has developed a TAC with a gas vent that prevents gas accumulation below the TAC while providing an effective tubing anchor. Available in both standard and "slim-line" TAC's, the OSI Gas Vent TAC increases annular flow area by 250% and 35% respectively.

Employing patented OSI "Dual-Flow" technology, the Gas Vent TAC can be combined with any gas separator and any other OSI fluid conditioning tools.

Use your device by scanning the QR code

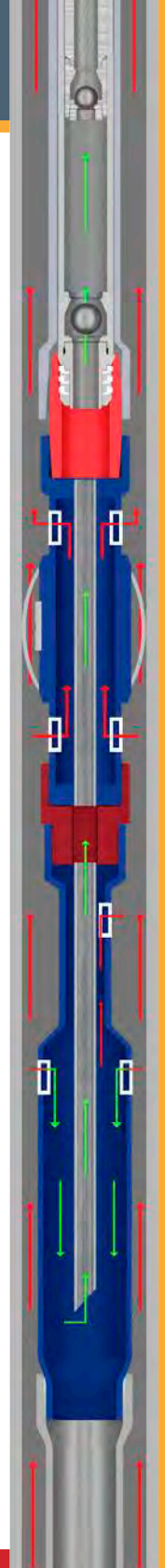
VIDEO

AUGMENTED REALITY

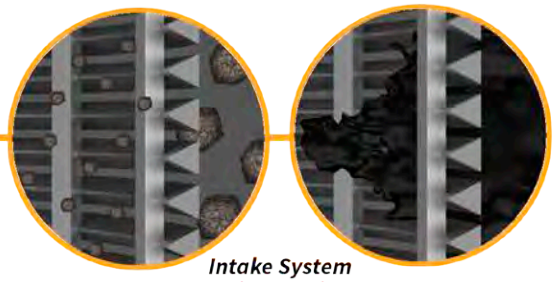
HOW IT WORKS

WITH GAS

WITHOUT GAS



GAS SHIELD



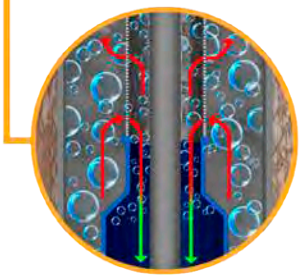
Pump

Seating Nipple

Intake System
(2 Stage)

Wells that have both, gas interference and solids problems, require fluid conditioning tools that address both problems to prevent damage to the artificial lift system and to keep production at peak efficiency.

The OSI GAS SHIELD is specifically designed to reduce gas interference and prevent gas locking. It is combined with a three ft., 75 slot "V"-wire screen to shield the pump from solids intrusions.

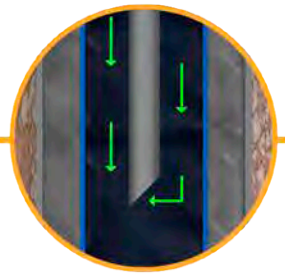


Bull Plug

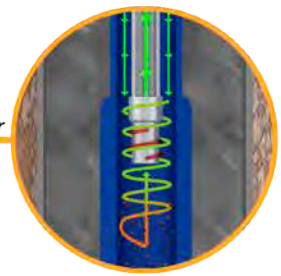
INTAKE / GAS SEPARATION
(1 stage)

BENEFITS

- Mitigates gas slugs.
- Reduces gas interference, prevents gas locking.
- Provides large solids protection.



or



DIP TUBE 45 Degrees
(3 stage)

VORTEX SEPARATOR

Use your device by scanning the QR code

With Out Vortex
VIDEO

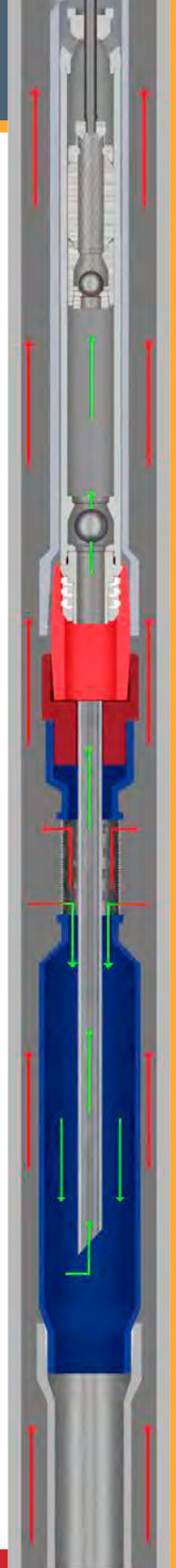
With Vortex
VIDEO

AUGMENTED REALITY

HOW IT WORKS

WITHOUT GAS

WITH GAS



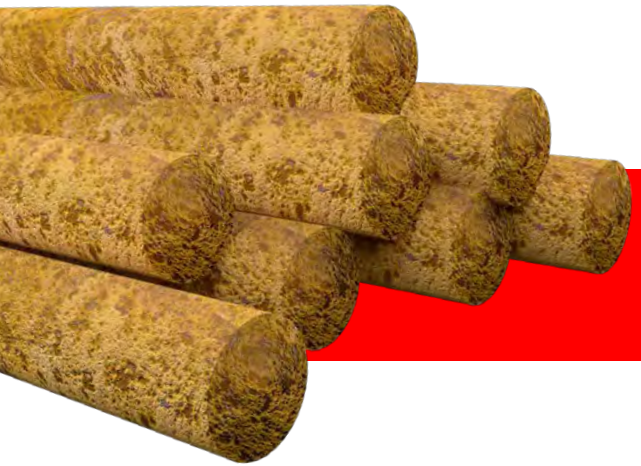
Oilfield Challenges CHEMICAL

The PhD Chemists at Odessa Separator, Inc. are continually researching and applying the latest chemical technology to ensure operators have the most effective chemical treatment programs possible.

OSI's extensive and unique line of chemical treating tools combined with the latest laboratory testing capabilities provide cost effective solutions for the most difficult producing conditions.
OSI personnel conduct ongoing, residual testing using procedures based on A.T.S.M., N.A.C.E. and A.W.W.A. test methods.

OSI TOOLS TREAT

PARRAFIN | ASPHALTENES | BIOLOGICALS | SCALE
CORROSION | FOAM | STICTION



OSI SOLUTIONS

Common surface and batch chemical treatment programs are expensive and only marginally effective. Through OSI's micro-encapsulation technology, all the active components of the most effective liquid chemical treatments are processed into a solid form.

The extensive product line of solid chemicals is contained in screen tools and installed below the pump intake where activation and dispersal are achieved much more quickly and effectively than surface or batch treatments.

Employing solid chemical solutions achieves continual, long-term, effective chemical treatments.

It is time to innovate; treat the well from bottom-up and have the chemical where you need it. “Close to the Pump”.

CHEM STICKS

For a fast dispersal, chemical shock treatment, OSI CHEM STICKS are dropped directly into the well from the surface. Corrosion, scale, paraffin, or other destructive downhole agents are now easier than ever to combat.

Based on OSI's patented micro-encapsulation technology, the ChemSticks are simple supplements to enhance chemical treatment, requiring no additional costly resources.

ChemSticks are ordered with general or well-specific formulas for any flowing well or any artificial lift well: SRP, ESP, PCP, gas lift, plunger lift, and jet pump.

BENEFITS

- *Well-specific prescriptions are based upon water & oil analysis.*
- *All corrosion sticks have quat + scavenger include for combating H2S.*

Use your device by scanning the QR code

AUGMENTED REALITY

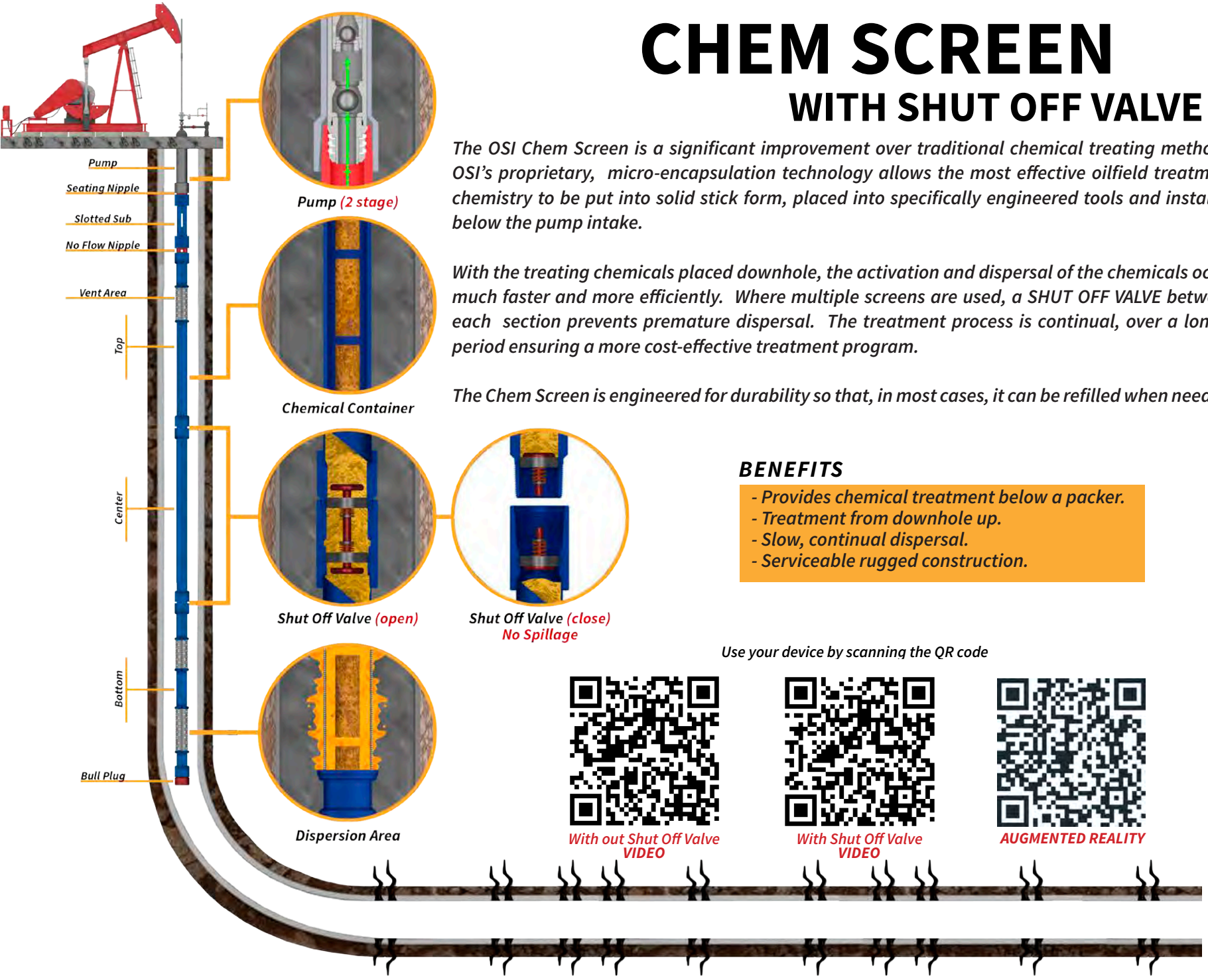
Each ChemStick pack has 4 sticks of well specific or general formulas comprised of inhibitors addressing corrosion, scale, paraffin, asphaltenes, foaming, & combo formulas

CHEM SCREEN
WITH SHUT OFF VALVE

The OSI Chem Screen is a significant improvement over traditional chemical treating methods. OSI's proprietary, micro-encapsulation technology allows the most effective oilfield treatment chemistry to be put into solid stick form, placed into specifically engineered tools and installed below the pump intake.

With the treating chemicals placed downhole, the activation and dispersal of the chemicals occur much faster and more efficiently. Where multiple screens are used, a SHUT OFF VALVE between each section prevents premature dispersal. The treatment process is continual, over a longer period ensuring a more cost-effective treatment program.

The Chem Screen is engineered for durability so that, in most cases, it can be refilled when needed.



BENEFITS

- Provides chemical treatment below a packer.
- Treatment from downhole up.
- Slow, continual dispersal.
- Serviceable rugged construction.

Use your device by scanning the QR code

With out Shut Off Valve VIDEO

With Shut Off Valve VIDEO

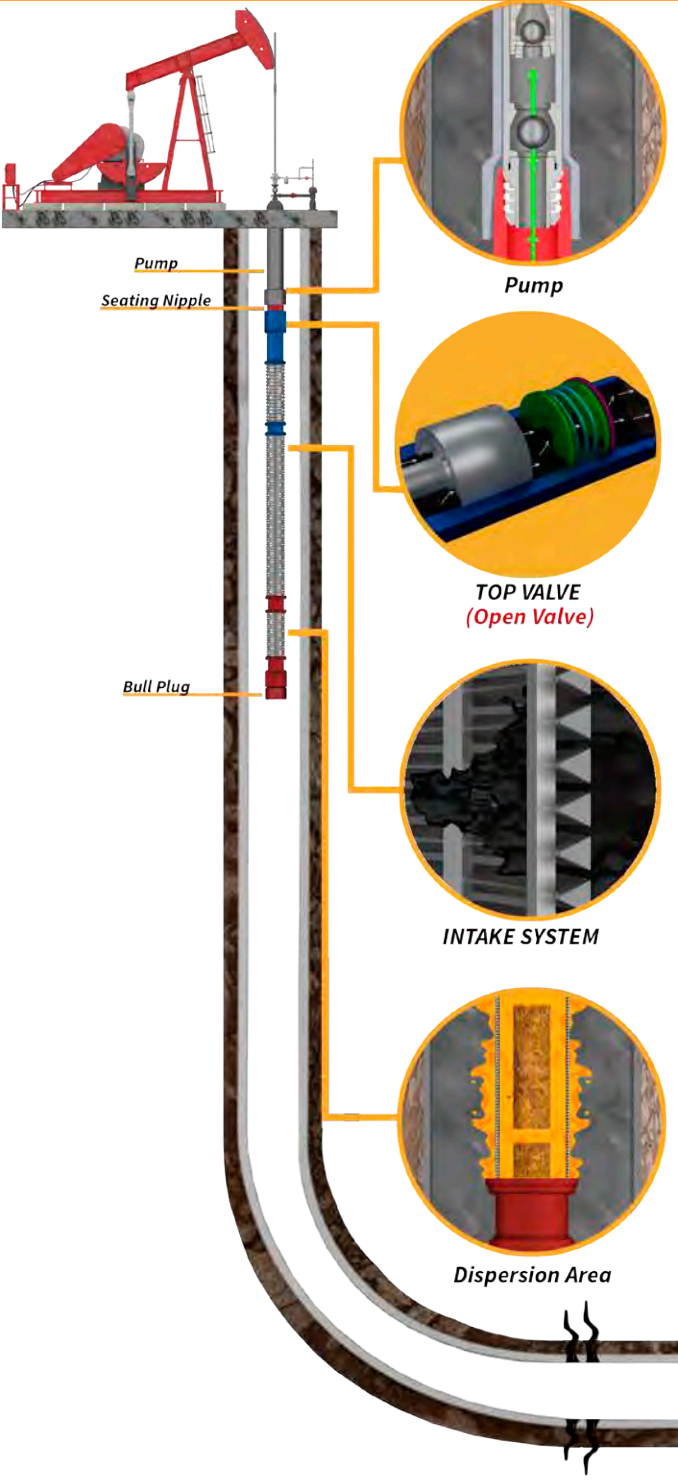
AUGMENTED REALITY

HOW IT WORKS

CHEMICAL FLUID

CHEM FILTER TOOL

3 in 1



The OSI CHEM FILTER TOOL is three tools in one.

***One**, it is a Chem Screen that provides efficient, cost-effective downhole chemical treatment.*

With the treating chemicals placed downhole, the activation and dispersal of the chemicals occur much faster and more efficiently. The Chem Screen is engineered for durability so that, in most cases, it can be refilled when needed.

***Two**, it is a TUBING SCREEN designed to extend the run life of downhole components. The tubing screen uses a "V" wire mesh to separate large particles, abrasive solids and providing maximum flow area for well fluids. The tubing screen provides the best protection available against the destructive effects of sand.*

***Three**, it is TOP BYPASS VALVE that extends pump runtimes by allowing fluid flow to the pump should the intakes plug off from sand, scale, or paraffin.*

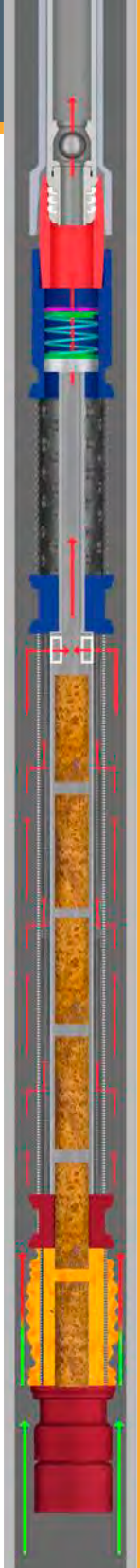
Use your device by scanning the QR code

AUGMENTED REALITY

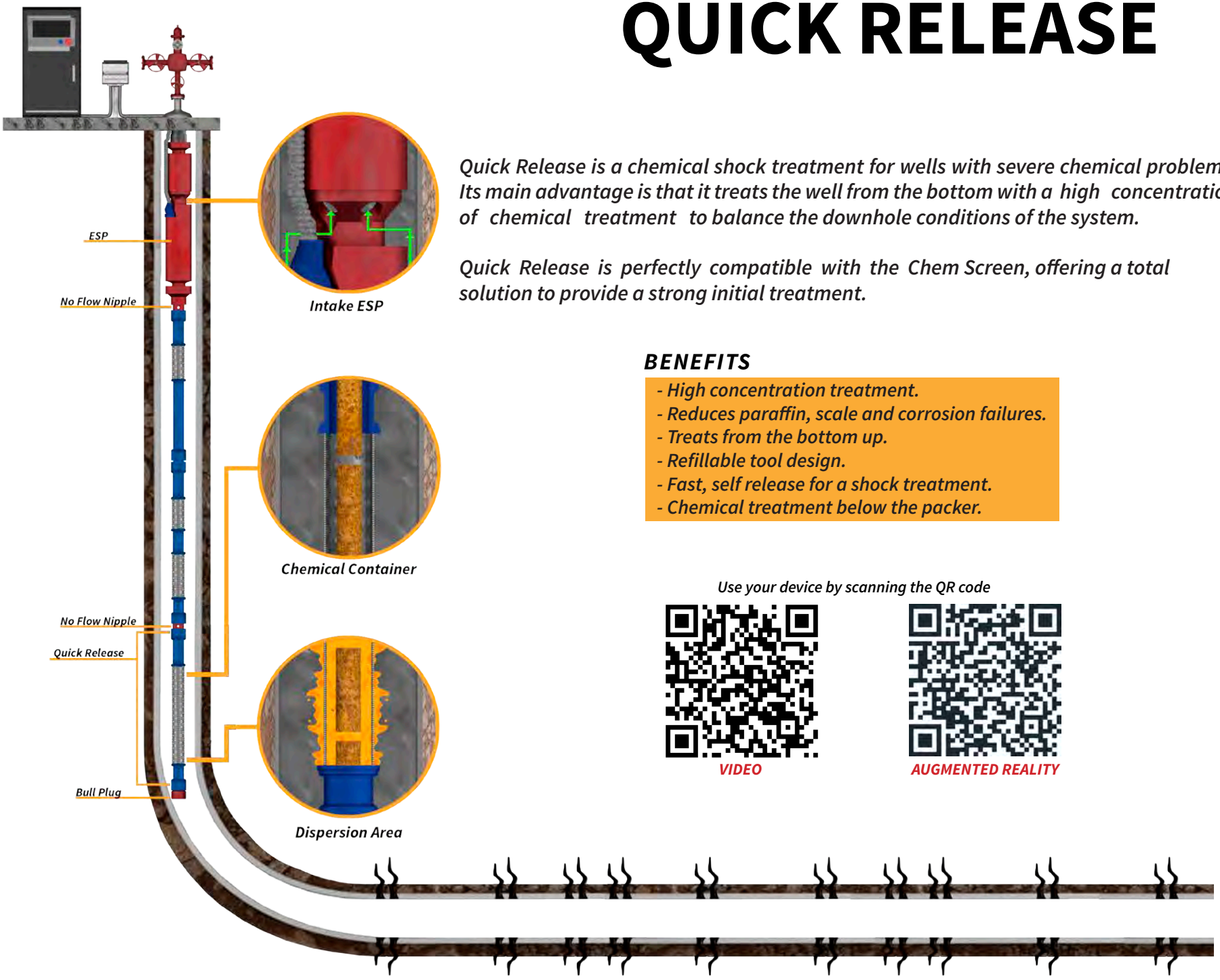
BENEFITS

- *Provides downhole chemical treatment.*
- *Prevents sand damage and extends runtimes.*
- *Ensures continued fluid flow intake.*

HOW IT WORKS



QUICK RELEASE



Quick Release is a chemical shock treatment for wells with severe chemical problems. Its main advantage is that it treats the well from the bottom with a high concentration of chemical treatment to balance the downhole conditions of the system.

Quick Release is perfectly compatible with the Chem Screen, offering a total solution to provide a strong initial treatment.

BENEFITS

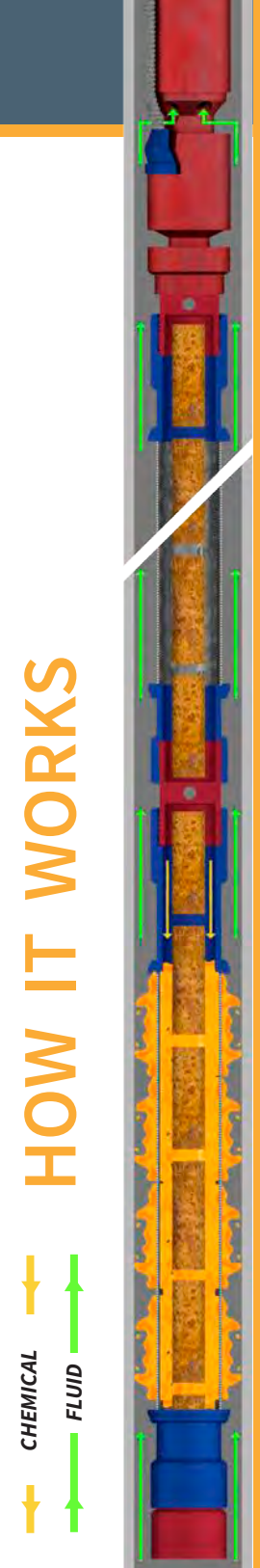
- *High concentration treatment.*
- *Reduces paraffin, scale and corrosion failures.*
- *Treats from the bottom up.*
- *Refillable tool design.*
- *Fast, self release for a shock treatment.*
- *Chemical treatment below the packer.*

Use your device by scanning the QR code

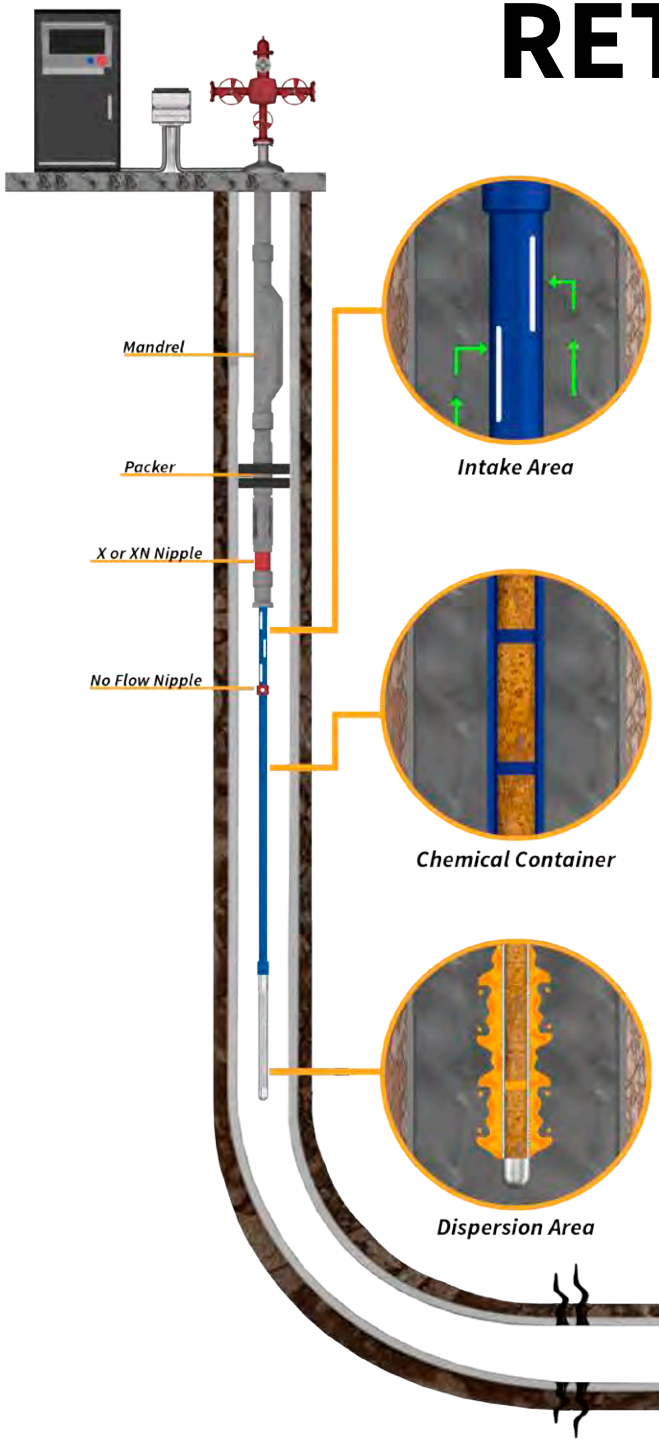
VIDEO

AUGMENTED REALITY

HOW IT WORKS



RETRIEVABLE CHEM TOOL



The Retrievable Chem Tool is designed specifically for wells with high lifting costs that have chemical issues downhole, such as corrosion, scale, paraffin, asphaltenes, etc. The tool provides an even distribution of well-specific chemicals while offering an easy installation.

In Gas Lift or Plunger Lift applications, the tool is installed via slickline, sitting inside the X or XN Nipple, and is held in place with a standard lock mandrel.
After installation, the tool comes in contact with wellbore fluid, releasing the chemical through the screen at the bottom of the well. It offers a controlled dispersion from the bottom up, which protects the artificial lift system.

BENEFITS

- *Slow, self release of chemical(s).*
- *Up to 6 months of chemical treatment.*
- *Reduces paraffin, scale, and corrosion failures.*
- *Variety of well specific recipes (paraffin, asphaltenes, corrosion, scale).*
- *Can be easily installed, set, & retrieved with wireline or slickline.*
- *Low installation costs.*

Use your device by scanning the QR code

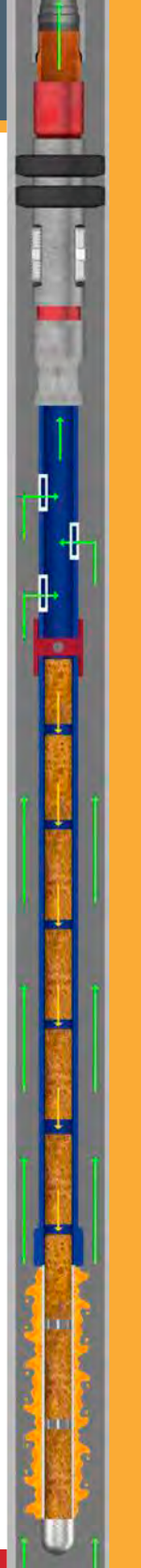
VIDEO

AUGMENTED REALITY

HOW IT WORKS

CHEMICAL

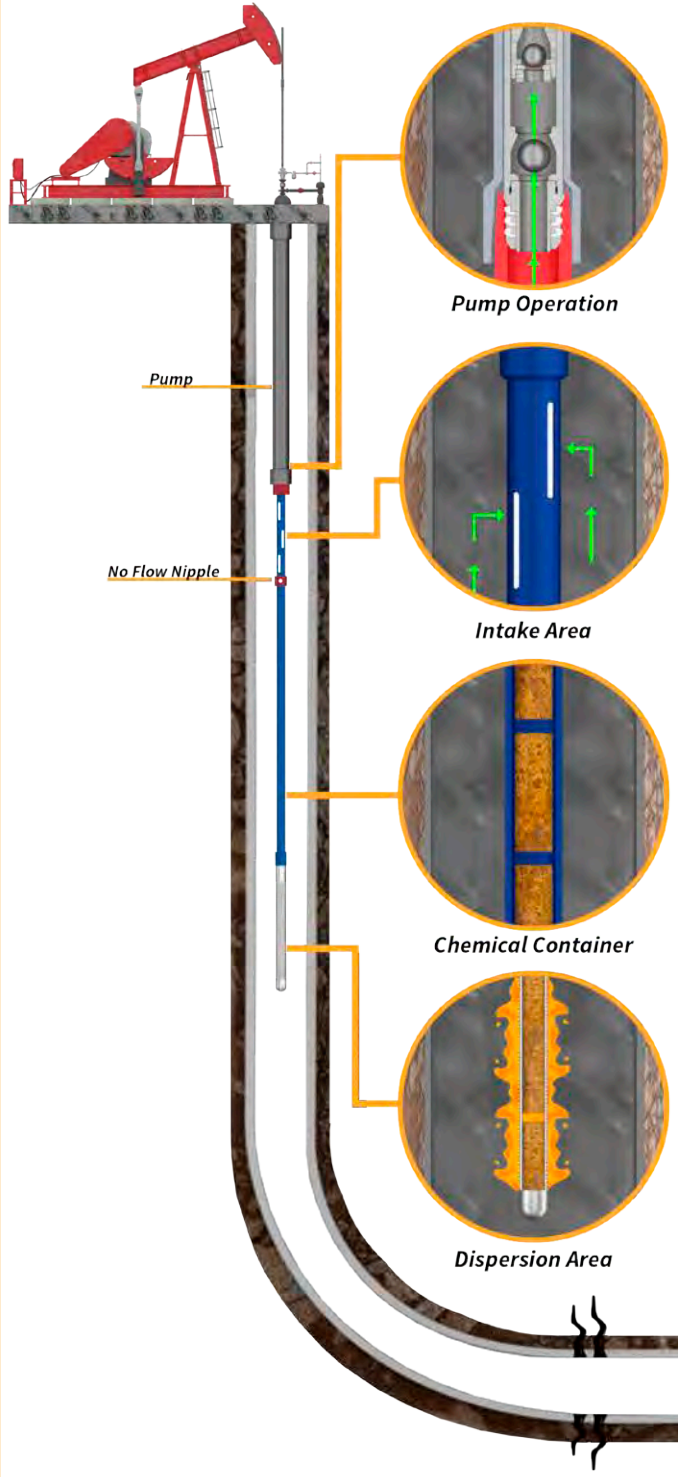
FLUID



SRP RETRIEVABLE CHEM TOOL

The SRP Retrievable Chem Tool is designed specifically for wells with high lifting costs that have chemical issues downhole, such as corrosion, scale, paraffin, asphaltenes, etc. The tool provides an even distribution of well-specific chemicals while offering an easy installation.

The SRP Retrievable Chem Tool is easily installed below the coupling of the insert rod pump, which translates into lower operating costs since it is not necessary to pull out the production tubing. This features makes it the best alternative to condition the fluid from the bottom of the well, improving the life of the sucker rod pumps and well production. After installation, the tool comes in contact with wellbore fluid, releasing the chemical product through the screen at the bottom of the well. It offers a controlled dispersion, from the bottom up, which protects the artificial lift system.



BENEFITS

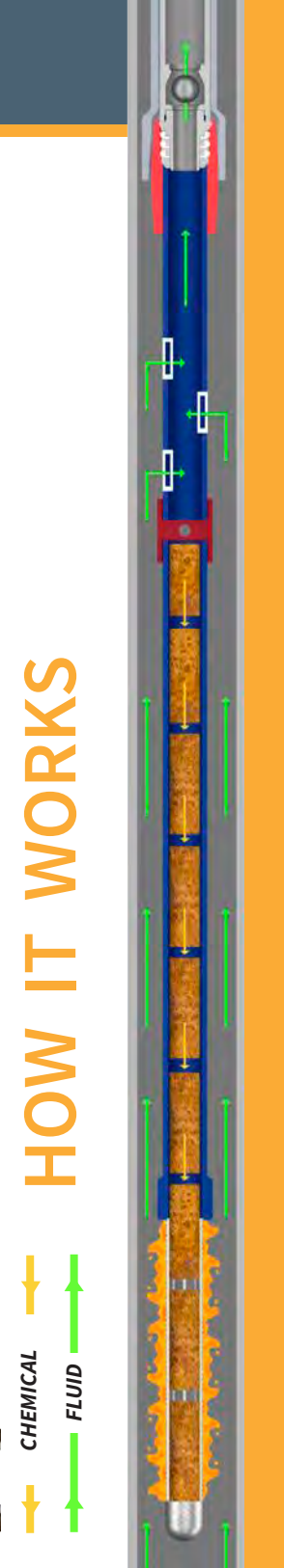
- *Designed insert Sucker Rod Pump.*
- *Slow, self release of chemical(s).*
- *Up to 6 months of chemical treatment.*
- *Reduces paraffin, scale, and corrosion failures.*
- *Variety of well specific recipes (paraffin, asphaltenes, corrosion, scale).*
- *Low installation costs.*

Use your device by scanning the QR code

VIDEO

AUGMENTED REALITY

HOW IT WORKS




Super Lube Tubing Tool


Super Lube Gas Anchor

SUPER LUBE

Odessa Separator has a simple and affordable solution to the many sticking issues encountered in conventional rod lift or PCP.

The OSI SUPER LUBE is a highly concentrated, ultra-slick lubricant in stick form.

The sticks are deployed downhole in a Gas Anchor type tool instead of the conventional gas anchor or in a tubing tool for a greater volume of lubricant.

SIZES	
2 - 3 / 8" x 8'	2 - 3 / 8" x 24'
2 - 7 / 8" x 8'	2 - 7 / 8" x 24'
3 - 1 / 2" x 8'	3 - 1 / 2" x 24'
Super Lube Tubing Tool	

SIZES
1" x 24'
1 - 1 / 4" x 24'
1 - 1 / 2" x 24'
Super Lube Gas Anchor

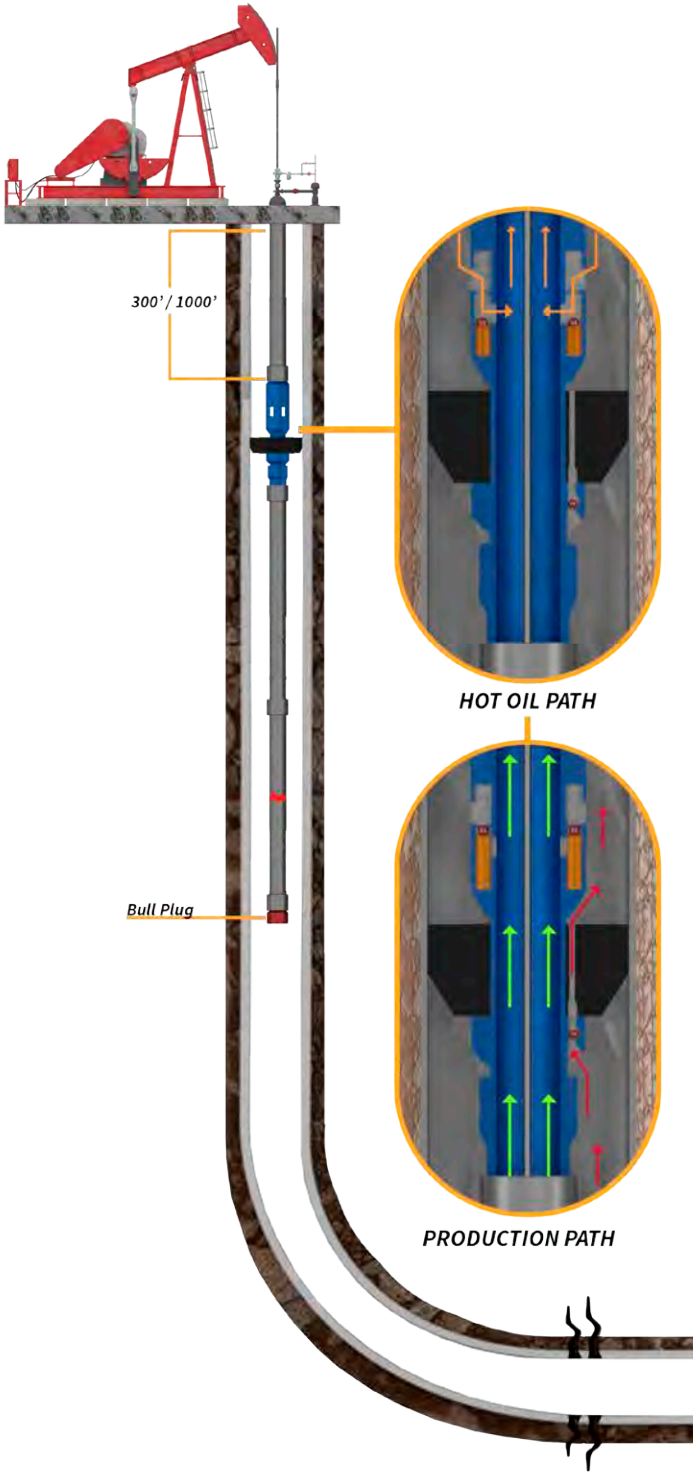
Use your device by scanning the QR code

AUGMENTED REALITY
Super Lube Tubing Tool

AUGMENTED REALITY
Super Lube Gas Anchor

HIGH WATER CUT WELLS
– HIGH GOR –
SAND STICKING PROBLEMS

HOT OIL TOOL



Odessa Separator now provides an innovative new product designed and engineered to make hot oil operations more efficient less costly and far less damaging to formations

1. Hot oil is pumped down to the depth of the packer and circulated back to the surface. The treating fluid does not go into the formation.

2. A typical hot oil job with the OSI Hot Oil Tool should require only about two hours and will treat much more thoroughly.

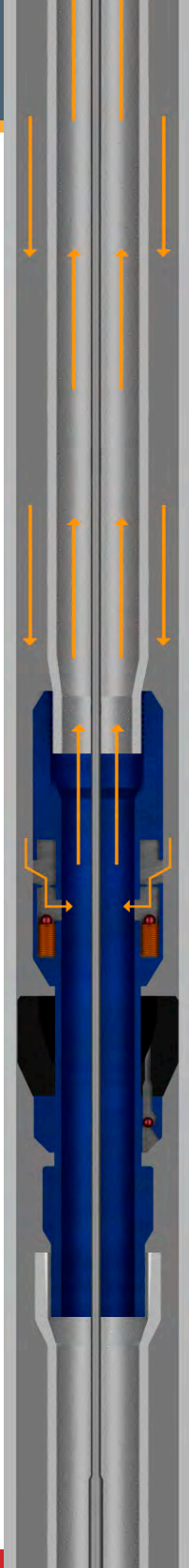
3. The well will take far less time to recover.

4. The main purpose of the Hot Oil Tool is to keep the treating oil hot while it does its' job and to keep the treating oil from damaging the formation.

Use your device by scanning the QR code

AUGMENTED REALITY

HOW IT WORKS



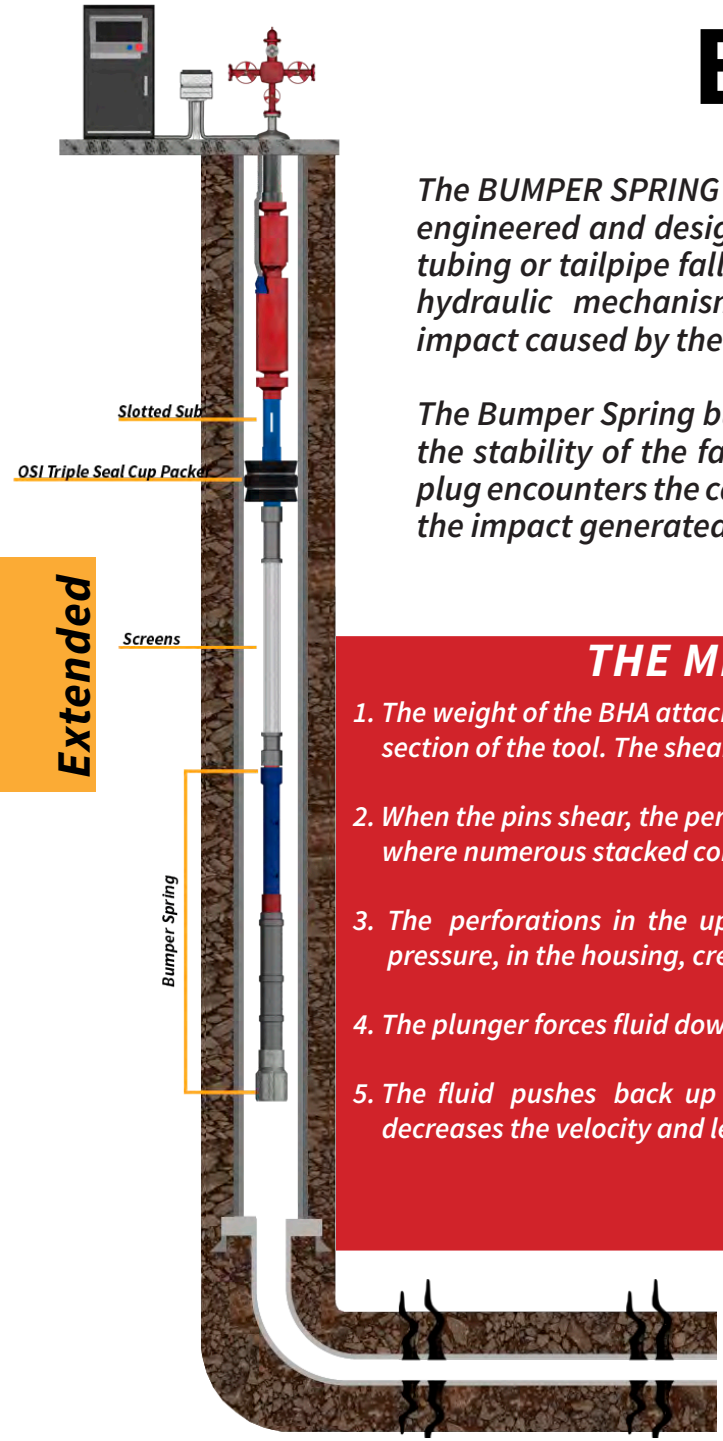
BUMPER SPRING

The BUMPER SPRING is a new tool from Odessa Separator that is specially engineered and designed to protect the integrity of the well when parted tubing or tailpipe falls to the bottom. Using a combination of friction and hydraulic mechanisms, the BUMPER SPRING absorbs and mitigates the impact caused by the weight of the assembly above it.

The Bumper Spring bull plug design uses fluid flow to center and maintain the stability of the falling BHA to prevent casing damage. When the bull plug encounters the casing liner, the Bumper Spring compresses, absorbing the impact generated by the weight and velocity of the falling equipment.

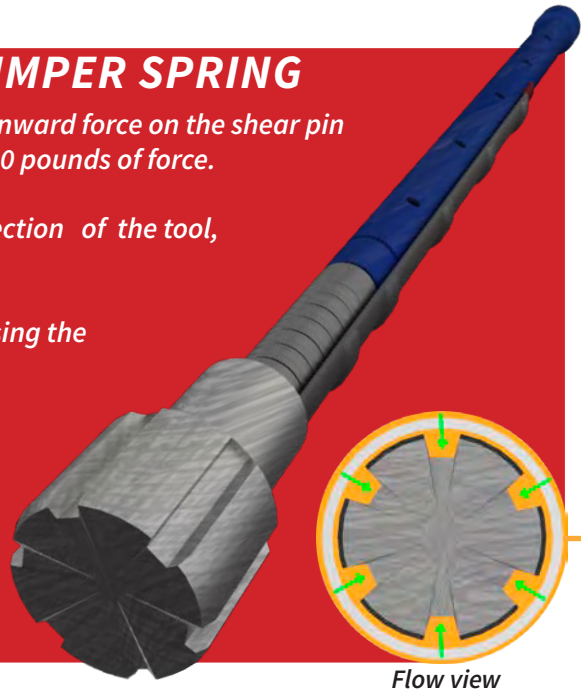
Use your device by scanning the QR code

AUGMENTED REALITY



THE MECHANICS OF THE OSI BUMPER SPRING

1. *The weight of the BHA attached above the Bumper Spring creates a downward force on the shear pin section of the tool. The shear pin section has three pins that shear at 9700 pounds of force.*
2. *When the pins shear, the perforated upper section falls into the lower section of the tool, where numerous stacked compression disks absorb the impact.*
3. *The perforations in the upper section allow fluid to flow out releasing the pressure, in the housing, created by fluid accumulation.*
4. *The plunger forces fluid downward into the center tube.*
5. *The fluid pushes back up creating a hydraulic force which decreases the velocity and lessens the impact.*



Flow view

The Bumper Spring is designed for wells with 7" casing (26 lbs./ft. or lighter) and a 5-1/2" or 4-1/2" liner.

HEX BULL PLUG

The OSI HEX BULL PLUG is very low-cost insurance for a horizontal well.

In the event of a tubing part, the over-size hexagonal design prevents falling equipment from entering the lateral section.

Service crews know precisely where to fish greatly reducing well servicing time and costs.

Use your device by scanning the QR code

AUGMENTED REALITY

The Hex Bull Plug's simplicity, durable construction and low cost make it a "must have" for horizontal wells!

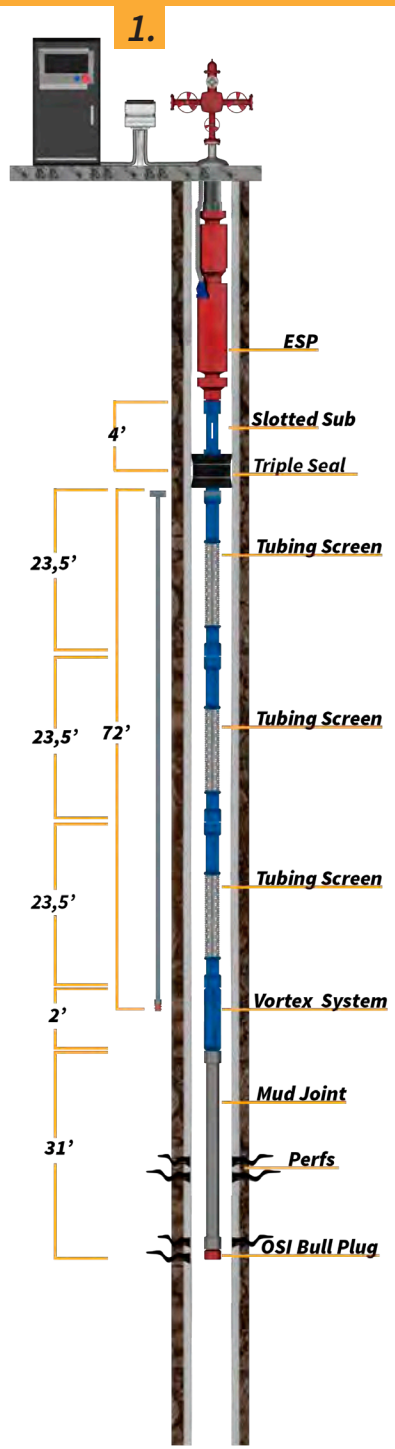
SAVES OPERATORS SIGNIFICANT PULLING AND FISHING COSTS!

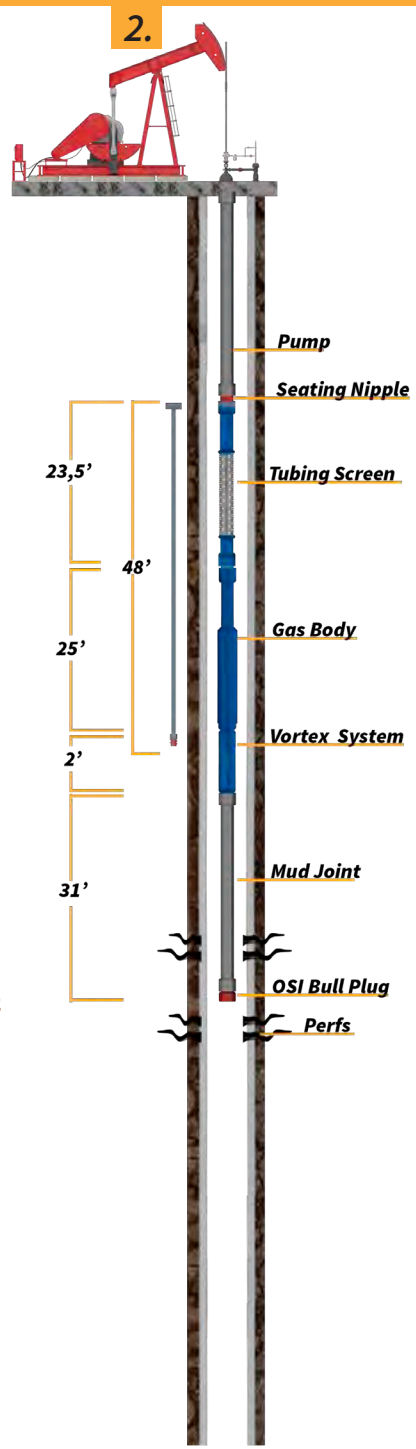
WELLBORE APPLICATIONS

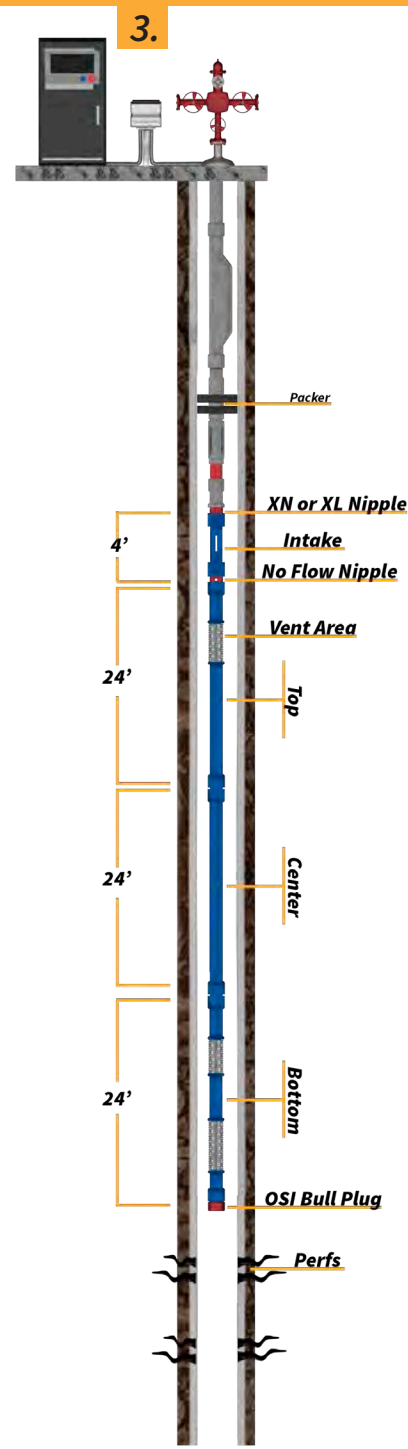
1. *ESP configuration, using Slotted Sub, Packer - Tubing Screen with 72' Dip Tube, Vortex Sand Shield and Mud joint.*

2. *Beam pump configuration, Combination Tool with 48' Dip Tube (Sand and Gas Separator).*

3. *Gas Lift Configuration, Tubing Mandrel, Packer, XN or XL Nipple, Intake 4' (slotted sub), Chem Screen 72'.*







TECHNICAL SPECIFICATION

Filtration / Sand Control

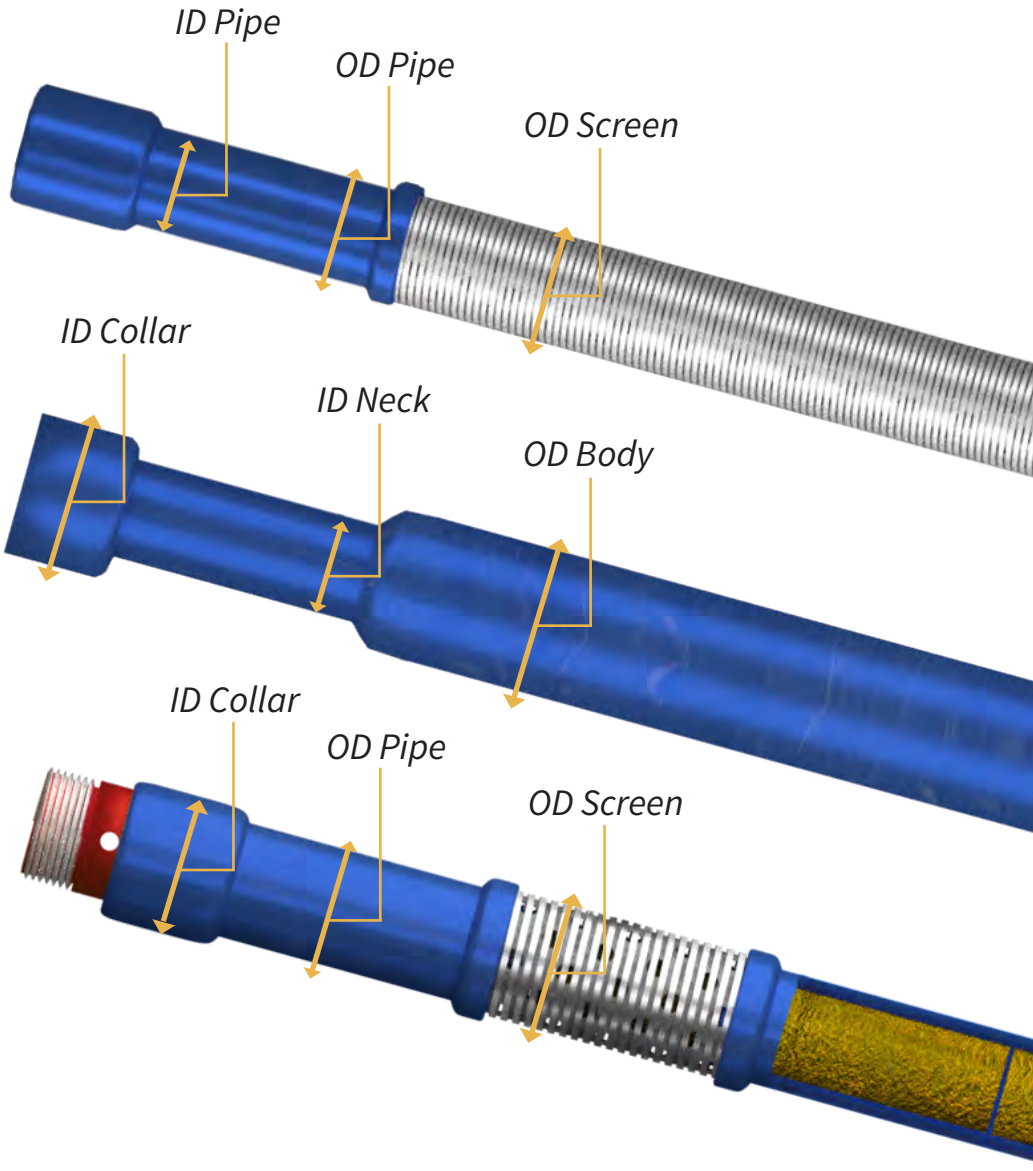
	Pipe (in)		Screen (in)	Collar (in)	
Sizes	OD	ID	OD	OD	ID
2 - 3 / 8"	2.375	1.941	2.870	3.063	2.375
2 - 7 / 8 "	2.875	2.441	3.370	3.668	2.875
3 - 1 / 2"	3.500	3.066	3.940	4.500	3.500

Gas separation

	Neck (in)		Body (in)		Collar (in)	
Sizes	OD	ID	OD	ID	OD	ID
2 - 3 / 8" x 3"	2.375	1.941	3.000	2.500	3.063	2.375
2 - 7 / 8 " x 3 - 1 / 2 "	2.875	2.441	3.500	3.000	3.668	2.875
2 - 7 / 8 " x 4"	2.875	2.441	4.000	3.500	3.668	2.875
2 - 7 / 8 " x 4 - 1 / 2"	2.875	2.441	4.500	4.000	3.668	2.875
3 - 1 / 2" x 4 - 1 / 2 "	3.500	3.066	4.500	4.000	4.500	3.500
3 - 1 / 2" x 5 - 1 / 2"	3.500	3.066	5.500	5.000	4.500	3.500

Chemical Treatment

	Pipe (in)		Screen (in)	Collar (in)	
Sizes	OD	ID	OD	OD	ID
2 - 3 / 8"	2.375	1.941	2.870	3.063	2.375
2 - 7 / 8 "	2.875	2.441	3.370	3.668	2.875
3 - 1 / 2"	3.500	3.066	3.940	4.500	3.500

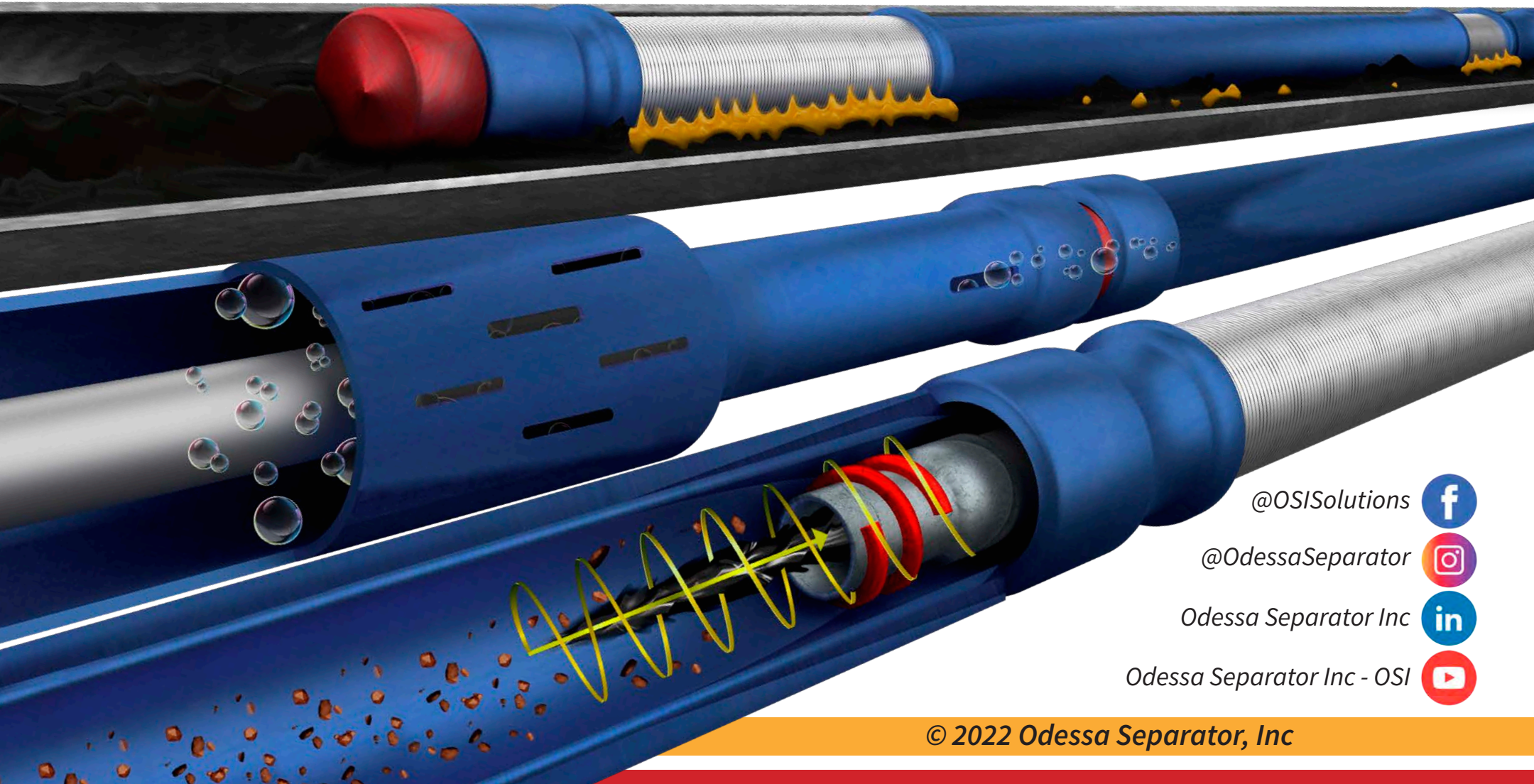


Odessa Separator, Inc

1001 E. Pearl Street. Odessa, TX 79761 (USA)
Office: +1(432)-580-7111
www.odessaseparator.com

WESTERN
OILFIELD
SPECIALTIES CORP

7108-56 Ave NW, Edmonton AB
Office (780) 437-7733
www.wos.ca



@OSISolutions
@OdessaSeparator
Odessa Separator Inc
Odessa Separator Inc - OSI